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Методические указания для магистрантов и аспирантов технических специальностей

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Работа выполнена на кафедре иностранных языков технических факультетов НГТУ

Методические указания для магистрантов и аспирантов технических специальностей *Научная публикация (публикация в сборнике материалов международной научной конференции)* предназначены как для работы на занятиях под руководством преподавателя, так и для самостоятельной работы. В методических указаниях содержатся справочные и обучающие материалы по развитию умений в письменной научной речи (умения писать аннотации научной статьи, тезисы доклада, полный текст доклада, статьи, информационные письма, резюме и рецензии). В работе привлекается внимание к тем многочисленным ресурсам, в том числе и электронным, которые помогают овладеть научной речью на английском языке. Это словари научной речи, справочные издания и материалы, наконец, публикации в журналах и сборниках материалов конференций. Заключительный раздел содержит рекомендации по подготовке презентации и стендового доклада на научной конференции.

Для работы на занятиях в группах магистерской подготовки рекомендуется полностью проработать разделы 1–3, 5, 6, а раздел 4 выборочно. Аспирантам рекомендуется изучить материалы в полном объеме.

Составители надеются, что методические указания будут способствовать развитию умений в письменной научной речи на английском языке у указанной группы учащихся.

АНГЛИЙСКИЙ ЯЗЫК

НАУЧНАЯ ПУБЛИКАЦИЯ

Методические указания

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Section 3, Abstracts for Conferences – М.М. Прилуцкая

Section 4, Writing a Full Paper – А.Г. Штамлер, М.М. Прилуцкая, Е.В. Каминская

Section 5, Writing a Summary – С.М. Стенникова, М.М. Прилуцкая

Section 6, Giving a Paper at an International Conference – М.М. Прилуцкая

Appendix I, Dictionaries and Reference Guides – М.М. Прилуцкая

Appendix II, Punctuation Rules – А.Г. Штамлер

Appendix III, Words and Expressions of Low Information Content – С.М. Стенникова

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CONTENTS

SECTION 1

INTRODUCTION

Dear Graduate Student,

You are in a Master's or Doctoral program, and you certainly know that writing scientific papers in English is of particular importance to you. Nowadays, a lot of **international scientific journals are issued** on a regular basis, and they are published in English. Besides, international scientific conferences are held all over the world, with English being the working language. Hence the **proceedings of international conferences** are published in English. "Students must learn how to write, because science demands written expression. The goal of scientific research is **publication**. The scientist must not only "do" science, he must "write" science. A poorly prepared **manuscript** is, almost without fail, the carrier vehicle of poor science. Scientists become known (or remain unknown), by their publications." **[R. Day, "How to write and publish a scientific paper". 1979, pp. 4–62].***

The conclusion is obvious–it is necessary to master writing skills so that you should be able **to publish** your papers in English as well. You may start with **an abstract of your paper** written in Russian (some conferences require that you enclose an abstract written in English) or with **an abstract of your paper to be presented at an international conference** and sent to **the scientific committee** (it is up to this committee to make the final decision about **accepting or rejecting the paper**). Many engineering, physics, and mathematics conferences make their **paper acceptance decision based on an abstract**. Beyond any doubt, the results of your investigation are expected to be novel and original. Besides, **prospective authors** should present their proposals written in good English. Here is a quotation from **a circular letter** announcing an international conference: **"The abstracts/ papers must be written in good English"**. So, your English should be up to the mark. You have a good potential, and we believe you'll master your writing skills. Nowadays, it has become easier to master these skills due to electronic dictionaries you almost certainly are thoroughly familiar with, **the ABBYY Lingvo being among the most popular electronic aids**. To write in good English, you'll need some other dictionaries as well: those introducing scientific style patterns, expressions,

and word combinations in more detail, all based on original usage [1–4]. See the references enclosed, as well as annotations given in Appendix I, and get acquainted with the editions in case you have not addressed them yet. Also, we recommend you to get acquainted with reference guides to academic writing [1, 3].

As is known, many conferences include **poster sessions**. **A poster presentation** is your chance to communicate with those participants who are interested in your research area and in the results you obtained.

An abstract of a paper to be given at a conference is only your first step. In computer science, **a full paper** is typically submitted and, if accepted, is published in **the proceedings**. In any case, sooner or later, you'll be suggested **to submit a full paper for publishing**. Its format is practically similar to this of **an article/ paper published in journals, transactions,** etc., and you have an idea about how to write it, but the paper should be written in English**,** and it is a great responsibility. Of course, you are given **a template for** writing the paper in accordance with the requirements of the conference. Besides, some of your classmates are sure to gain this experience. Follow their example!

Finally, you are expected to write **a journal article/ paper**. You have acquired some experience in writing and have at least one **full paper published in conference proceedings**. Go ahead! Try to do it! You have so many resources at your disposal, and you are sure to succeed.

The aim of this instruction manual is to provide materials helping you hone your writing skills. We also included materials helping you present your paper at an international conference. Address this manual! Follow it! Visit our website!

Sincerely yours,
ARCD team**

*Borrowed from *Рябцева Н.К.* Научная речь на английском языке: Новый словарь-справочник активного типа (на английском языке) – М.: Флинта: Наука, 2000, с. 87.

ARCD team **Academic W**r**iting **C**ourse **D**esign team (authors of the learner's guide)

References

[1] *Владимирская Е.В. и др.* Русско-английский словарь и фразеология новых разделов физики полупроводников. СПб.: Наука, 2000, С. 29–100.

[2] *Кузнецов Б.В.* Русско-английский словарь научно-технической лексики. М., 1992.

[3] *Рябцева Н.К.* Научная речь на английском языке: Новый словарь-справочник активного типа (на английском языке) – М.: Флинта: Наука, 2000. – 600 с.

[4] *Циммерман М., Веденеева К.* Русско-английский научно-технический словарь переводчика. М., Наука; Нью-Йорк, 1991.

GLOSSARY

Abstract *n.* 1. (a summary of a scientific paper to be presented at a conference) тезисы (доклада); extended abstract (a short version of the paper, with some background information and detailed description of the main results) развёрнутые/ расширенные тезисы; abstract book сборник тезисов докладов конференции; 2. (a brief summary of a scientific paper which precedes a journal publication or a stand-alone summary of a book, paper, etc.) аннотация

Accept *v.* (take something offered) принимать: *The accepted papers will be required in camera-ready format in English only.*

Acceptance *n.* (act of accepting) принятие: *Contributors will be informed of the decision on acceptance/ non-acceptance of their papers.*

Appendix *n. pl.* appendices (a section at the end of a book/ paper containing additional information) приложение; appendices to an article

Article *n.* (composition written for publication) здесь (научная) статья; synonym: paper; journal/ learned/ research/ review/ scientific/ theoretical article

Author *n.* (someone who writes books, articles, etc.) здесь докладчик и автор публикации в материалах конференции: *Prospective authors are asked to submit only one paper for consideration;* corresponding author

Circular letter (announcement and call for papers) здесь информационное письмо о проведении конференции

Deadline *n.* (a specific time or date by which you have to do something) срок; последний срок; крайний срок; предельный срок: *The deadline for applications is April 15, 2009.*

Findings *n.* (information that you discover or opinions that you form after doing research) полученные данные, выводы: *The abstract should provide a brief summary of the findings of the paper.*

Issue *v.* (put out) выпускать

Issue *n.* (a single number of a periodical) номер: *The Journal of Lightwave Technology will publish a special issue on "Optical Networks".*

Journal *n.* (publication) научный журнал: *IEEE Journal of Quantum Electronics;* academic/ learned/ peer-reviewed/ professional/ refereed journal

Manuscript *n.* (a writer's original pages of a book, article, or document before it is published) рукопись: *The final acceptance of the paper will be based on the peer review of the complete manuscript.*

Off-print *n.* (a stand-alone reprint) отдельный оттиск (например, статьи)

Paper *n.* 1. (a talk on an academic subject) доклад; an invited/ contributed paper; to contribute/ give/ present/ submit a paper; 2. (a piece of writing on an academic subject) научная статья, публикация в научном журнале или в материалах конференции; a full/ journal/ review/ scientific/ theoretical paper

Pre-print *n.* (a preliminary publication) препринт (часть издания, например, журнальная статья, опубликованная до выхода всего издания)

Poster *n.* стендовый доклад; a poster paper/ presentation/ session

Presentation *n.* (a formal talk) презентация, доклад; synonym: paper, talk

Presenter *n.* (someone giving a conference presentation) докладчик на конференции

Proceedings *n.* (often capital, records of activities at meetings/ conferences, etc.) записки, труды (научного общества)/ материалы конференции, симпозиума, etc.: *A hardcover book of Proceedings will be available after the Symposium. It will contain all the presentations, either oral or poster, that are accepted by the Scientific Committee;* conference proceedings

Publication *n.* (something published) издание, публикация (книги, статьи, журнала)

Reference *n.* (something that tells a reader where the information came from that is used in a piece of writing) ссылка на источник используемой информации; *pl.* (a list of references at the end of the article/ paper) список литературы, который приводится в конце статьи

Review *n.* 1. обзор; a review paper; 2. рецензия, отзыв; to write a review; peer review экспертная оценка (научной статьи, работы, исследования): *The final acceptance of the paper will be based on the peer review of the complete manuscript.*

Submission *n.* (presenting an abstract/ paper for consideration, an abstract/ paper presented for consideration) представление доклада или тезисов/ представляемый доклад или тезисы: *The submissions listed are accepted for presentation at the Conference.*

Submit *v.* (present for consideration) представлять на рассмотрение: *The full paper should be submitted by March 20, 2009.*

Template *n.* (pattern) образец, трафарет, шаблон: *"In writing an abstract, use a template of LaTeX2e/ LaTeX format on the Symposium website".*

Title *n.* (name of a piece of writing, heading) заглавие, название

Transactions *n.* труды, протоколы (научного общества/ университета): *IEEE Transactions on Wireless Communication.*

Venue *n.* (the place where an activity or event happens) место проведения (мероприятия, встречи); venue for the conference

SECTION 2

PARTICIPATION IN INTERNATIONAL SCIENTIFIC CONFERENCES

CONFERENCE CIRCULAR LETTERS

DESRIPTION AND DEFINITIONS

An academic conference is a conference for researchers to present and discuss their work. Together with academic or scientific journals, conferences provide an important channel for exchange of information between researchers.

Generally, work is presented in the form of short, concise presentations lasting about 10 to 30 minutes, usually including discussion. The work may be bundled in written form as academic papers and published as the conference proceedings. Often there are one or more keynote speakers (usually scholars of some standing), presenting a lecture that lasts an hour or so, and which is likely to be advertised before the conference. Panel discussions, round-tables on various issues, workshops may be part of the conference.

http://en.wikipedia.org/wiki/Scientific_conference

VOCABULARY NOTES

Keynote speaker основной докладчик
Panel discussion здесь обсуждение какого-либо вопроса группой специалистов
Plenary session пленарное заседание
Round table «круглый стол», встреча за круглым столом
Workshop секция; семинар

TASK 1. Read the Description and Definitions section and answer the following questions:

1. Do you agree with the statement that an academic/ scientific conference promotes exchange of scientific information? Why are conferences in various fields of research held on a regular basis?
2. How much time does a conference presentation usually last?
3. What papers do keynote speakers present?
4. What sessions may be part of the conference?

TASK 2. Read the PaCT-2001 circular given below. Find information pertaining to the venue of the conference, its sponsors, aims, main topics, dates/ deadlines, contact addresses, conference proceedings, and the working language. Answer the following questions:

1. Where was the PaCT-2001 held?
2. Who was the Conference sponsored by?
3. What institutions organized the PaCT-2001?
4. What form were manuscripts submitted in?
5. What information was the first page expected to include?
6. Were the papers reviewed?
7. What format were the Conference participants asked to prepare their papers in?

PARALLEL COMPUTING TECHNOLOGIES (PaCT-2001)

Sixth International Conference

September 3–7, 2001
Novosibirsk, Russia
Sponsored by
Russian Academy of Sciences
Russian Fund for Basic Research
Ministry of Higher Education

WELCOME

The Computing Center of the Russian Academy of Sciences (Academgorodok, Novosibirsk), Novosibirsk State University and Novosibirsk State Technical University are jointly organizing the Sixth International Conference on PARALLEL COMPUTING TECHNOLOGIES (PaCT-2001).

The conference will be held in Novosibirsk, September 3–7, 2001. Five previous conferences have been held in Novosibirsk (1991), Obninsk (1993), St.-Petersburg (1995), Yaroslavl (1997) and St.-Petersburg (1999).

The aim of PaCT-2001 is to give an overview of new developments, applications, and trends in parallel computing technologies. We sincerely hope this conference will help to deepen our understanding of parallel computing technologies by providing a forum for an exchange of views between scientists and specialists from over the world.

We welcome your active participation.

MAIN TOPICS

* All aspects of the applications of parallel computer systems
* General methods and tools for parallel solution of big size problems
* Languages, environment and software tools supporting parallel processing
* Fine grained computations: models, languages, algorithms and technologies
* Operating systems, scheduling, mapping, load balancing
* General architecture concepts, enabling technologies
* Performance measurement and analysis
* Teaching parallel processing

CALL FOR PAPERS

Original manuscripts are solicited for the Conference. The full paper (not exceeding 15 pages) or extended abstract (about 5–7 pages) should be submitted to the conference address in Novosibirsk (see below) by January 20, 2001. Only electronic submission of manuscripts is accepted.

The first page should include (but not be limited to) the following information: title, the author's full names, affiliation, addresses, telephone and fax numbers, e-mail address. The name of contact author should be underlined.

To gain the better understanding of your abstract, we also request that the following information must be included: short review of related papers, formulation of the problem, objectives, description of results, main ideas, and the list of references.

All papers will be internationally reviewed. Authors will be notified of acceptance by March 15, 2001. We will require camera-ready copy of the accepted paper by May 20, 2001. We will be unable to include in the Proceedings papers that arrive after this deadline.

The organizers expect that the authors of selected papers will present their paper in Novosibirsk.

TECHNICAL DETAILS

The paper (extended abstract) should be prepared in plain ASCII, or standard LaTeX or Microsoft Word. We plan to publish the Proceedings of the conference as a volume of LNCS and ask you to prepare your paper in LNCS format (see URL http://www.springer.de/comp/lncs/authors.html).

PROCEEDINGS

The Conference Proceedings is planned to be published as the volume of Springer Verlag LNCS (Lecture Notes in Computer Science) series and distributed at the Conference.

LANGUAGE

The official language of the Conference is English.

SOCIAL ACTIVITIES

Cultural program is planned for the participants and accompanying persons.

SPECIAL SESSIONS

We plan to organize several special sessions.

1. Applications of the fine-grain computations: moderator Prof. G. Mauri (Milano-Bicocca), e-mail: mauri@disco.unimib.it
   Papers on fine-grain computations, cellular automata, computer simulation of discrete dynamical systems, discrete solution of differential equations are accepted for this special session.
2. Parallel numerical algorithms and large scale mathematical modeling: moderator Prof. V.Il'in (Novosibirsk), e-mail: ilin@comcen.nsk.su
   Scalable parallel numerical algorithms, digital processing, numerical solution of partial differential equations, parallel algorithms of linear algebra are accepted for this special session.
3. History of Parallel Computing. Moderator Prof. Ya.Fet, e-mail: fet@ssd.sscc.ru
4. The papers devoted to the history of parallel computing, famous projects are accepted.

Interested colleagues are invited to organize special sessions. The application to organize such a session should be sent to the address of Chairman not later than on February 5, 2001.

DEMO and TUTORIALS

Demo* of parallel system software, tools and applications is also planned. Demonstration might accompany the presentation of the accepted papers. University's teams and companies are invited to demonstrate their new software tools. The application should be sent to the Chairman by March 15, 2001.

We plan to organize one-day tutorials (before the conference days) devoted to the methods of parallel implementation of big size numerical models and cluster computing.

IMPORTANT DATES

* Submission of the extended abstract: January 20, 2001
* Notification of acceptance: March 15, 2001
* Camera-ready version of paper: May 20, 2001

PRELIMINARY REGISTRATION

There are two ways to be registered:

1. to visit our Web site at the URL
http://www.PaCT.sscc.ru/conference/pact2001/
and to fill in the Preliminary Registration form online. We prefer this way.
2. to send the requested information below to the Organizing Committee, preferably by e-mail (pact2001@ssd.sscc.ru).

Family name:
Given name:
Organization:
Address:
City:
State:
Zip:
Country:
Phone:
Fax:
E-mail:
Copy to e-mail:

Please mark any desirable lines with 'Y'/'N'

1. I want to receive information concerning the Conference:
all news concerning PaCT-2001 - Y
all news concerning further PaCTs – Y
2. I plan to attend the Conference – Y
3. I intend to submit a paper – Y
Paper title:
http://psb.sbras.ru/win/anons/461.html

*Demo abbrev demonstration демонстрация, показ, демонстрационная программа, демонстрационная версия, демоверсия, демо

TASK 3. Look through the PaCT-2009 circular letter. Answer the following questions:

1. What is the difference between these two circulars?
2. Does the PaCT-2009 provide detailed information for the prospective participants?
3. Why is this circular letter so brief? Does it contain useful information?
4. What publishers usually print the PaCT Proceedings?
5. What information is given about publishing selected papers?

Parallel Computing Technologies-2009 – First announcement and call for papers

The Tenth Int. Conference on Parallel Computing Technologies (PaCT-2009) will be held in Novosibirsk (Russia), August 31 – September 4, 2009. The main topics are all aspects of the applications of parallel computer systems, methods and tools for parallel solution of large-scale problems, cellular automata and cellular neural networks, software for GRID computing, languages, environment and software tools supporting parallel processing and the others. The Conference Proceedings is planned to be published as the volume of the Springer Verlag LNCS (Lecture Notes in Computer Science) series and distributed at the Conference. We plan also to publish selected papers in a special issue of one of the international journals.

IMPORTANT DATES

- Submission of the full paper January 20, 2009
- Deadline for extended abstracts February 5, 2009
- Notification of acceptance March 15, 2009
- Camera-ready version of the accepted paper May 20, 2009

http://www.csin.ru/blog/2008-11-26-parallel-computing-technologies-2009--first-announcement-and-call-for-papers/

TASK 4. Answer the following questions:

1. Do you participate in "Young Researchers Conferences" held in Novosibirsk?
2. What international conferences does our University organize? Have you participated in one of these conferences?
3. Do you find it useful to look through circular letters announcing international conferences in your research field?
4. Are you going to submit your paper to an international conference to be held in the nearest future? If yes, what conference is it?

EXERCISES

1. Fill in the blanks with the following words: *abstract, title, to present, deadline, references, to register, Abstract Book, template.*

It is my adviser who told me about this international conference. Fortunately, it is to be held in Novosibirsk, which is not surprising: our city is an important center for scientific research with its numerous educational and research institutions, including these of SB RAS. I visited the Conference website and got acquainted in detail with the information given.

The official language of the Conference is English. The main topics to be discussed at the conference are in line with what I have been working at. I've obtained some interesting results which I would like _____ at the Conference. All participants are requested _____ online using a Registration Form on the Conference website. In writing an _____, prospective authors are asked to use a _____ of LaTeX format. For those who are not familiar with LaTeX, simple instructions are written with capital letters in this template, which tell you how to write the _____ of the paper, the author(s)' name, affiliation, the abstract, as well as equations and _____ . The deadline for submitting the abstracts is March 1. I do hope I'll prepare my abstract and send it by the _____ indicated. If accepted for presentation at the Conference, the abstract will be printed in the _____.

2. Replace the Russian words given in brackets with the following English equivalents: *abstract, special issue, present, Proceedings, acceptance, presented, submit, accepted.*

1. Symposium participants are encouraged to (представить на рассмотрение) a paper on all topics indicated above. 2. All papers (представляемые) at the Symposium are by invitation based on the recommendation of the Scientific Committee. 3. The author of a paper invited for presentation is expected to register and (представить) a paper at the Symposium. 4. Contributors will be informed of the decisions on (принятие) and the assignment of their papers to a session by June 30, 2009.

5. The (тезисы) of all the papers invited for presentation will be printed in the Abstract Book which will be distributed to the participants registered at the Symposium. 6. A hardcover book of (доклады научной конференции) will be compiled after the Symposium. 7. The Proceedings will contain all the presentations, either oral or poster, that are (приняты) through peer review by the Scientific Committee. 8. The authors of the

selected papers will be invited to submit an extended version of the paper for publication in a (специальный номер) of the IEEE Journal of Quantum Electronics.

TASK 5. Write a circular letter announcing a graduate school conference on the research field you major in. Follow the pattern of a standard conference circular. The letter should include information about the venue, topics, dates, publications, and working language(s).

CONFERENCE CORRESPONDENCE*

NOTE: Besides sending out circulars, conference organizers write letters of invitation to the conference to be held.

TASK 6. Study the structure and instructions for writing information letters given below.

1. Вступительное обращение (The Salutation)

Вступительное обращение является обязательным компонентом этикета делового письма и представляет собой общепринятую, стандартную формулу. В деловой корреспонденции принято несколько форм обращений, различающихся своей тональностью. В письмах-приглашениях обычно употребляются следующие формулы:

Dear Sir, (:)
Dear Madam, (:)
Dear Sirs, (:)
Dear Mesdames, (:), – которые звучат строго официально.
Менее официальный тон имеют такие формы обращений, как:
Dear Mr. Wilson, (:)
Dear Mrs. Evans, (:)
Dear Miss Nicolas, (:)
Dear Dr. Hastings, (:)
Dear Prof. Winston, (:)
Dear Colleague / Colleagues, (:).

При написании и оформлении письма необходимо помнить о традициях, сложившихся в деловой переписке. Так, в Великобритании после вступительного обращения ставится запятая, а в США – двоеточие.

Если письмо адресуется университету, научно-исследовательскому институту, организации, предприятию, фирме или компании, то в качестве официального обращения англичане используют **Dear Sirs, Dear Messrs.**, а американцы предпочитают **Dear Madam:, Dear Gentlemen:.**

2. Основная часть письма (The Body of the Letter)

Основной частью письма является сам текст письма, который разбивается на абзацы, что облегчает восприятие информации. В каждом абзаце следует рассматривать только одну тему, исключая все второстепенные вопросы, не имеющие отношения к цели письма. Стиль изложения должен быть чётким, выразительным, тактичным и уважительным.

При наборе текста письма используется «одинарный» межстрочный интервал и двойной интервал между абзацами.

3. Заключительная формула вежливости (The Closing Salutation)

Завершается письмо заключительной формулой вежливости, которая всегда начинается с заглавной буквы и выделяется запятой. Среди заключительных формул вежливости можно выделить:

- строго официальные:

Yours faithfully,
Yours truly,
Yours very truly,
Very truly yours, и

- менее официальные:

Yours sincerely,
Sincerely yours,
Yours very sincerely,
Cordially yours,
Very cordially yours,
Yours cordially,

4. Подпись
(The Signature)

Собственноручная подпись ставится под заключительной формулой вежливости. Далее идёт расшифровка подписи: на первой строке – полное имя, на второй строке – учёная степень, на третьей строке – занимаемая должность и на четвёртой строке – название университета, института или организации. Учёную степень или учёное звание можно указать полностью или в сокращённом виде:

Prof. = Professor
Doc. Eng. = Doctor of Engineering
PhD = Doctor of Philosophy
M. S. / MS (Am E), M. Sc. / MSc (Br E) = Master of Science
B. S. / BS (Am E), B. Sc. / BSc (Br E) = Bachelor of Science

TASK 7. Study the invitation letter as well as letters accepting and declining an invitation. Pay attention to the content and compositional parts of these letters.

1. Invitation to a Scientific Conference

Letter 1

Dear Colleagues,

The Spanish Power Center and Power-Gen Europe International Organizing and Advisory Committee invite you and your colleagues to participate in the International Conference Power-Gen Europe 2008 on Power Generation and Information Technologies to be held in Barcelona, Spain, 25–27 September, 2008. Commonly known as Power-Gen Europe, this well established Conference plays an active role in progressing our global understanding of the present-day management strategies required in power industry.

This Conference aims to continue the search for potential solutions to the problems on energy-conservation and generation, as well as the development of operating strategies, maintenance techniques to increase efficiency of power plants.

Power-Gen Europe 2008 will bring together more than 1000 delegates from more than 70 countries to keep abreast of the latest technological developments in Europe’s complex power industry.

Power-Gen Europe 2008 presents a unique occasion to share ideas and experiences amongst your colleagues from around the world and learn about alternative approaches to power generation. This Conference is an investment in your power industry's future.

We look forward to welcoming you to this dynamic event.

Martin Potvin
Professor
Co-Chairman of Power-Gen Europe 2008
Director of the Spanish Power Center

2. Accepting and Declining Invitation to Scientific Conference

Letter 2
(Accepting an invitation)

February 15, 2008
Ref.: PGE

Professor Martin Potvin
Co-Chairman of Power-Gen Europe 2008
Spanish Power Center
15, Upshire Street
Barcelona FB9 3SP
Spain

Dear Professor Potvin,

Thank you very much for your kind invitation to participate in the International Conference Power-Gen Europe 2008 on Power Generation and Information Technologies to be held in Barcelona, Spain, 25-27 September, 2008.

I accept your invitation with great pleasure and submit you my Abstract of the paper entitled "New Ways of Utilizing Waste Heat."

I hope to receive a positive response from you in the very near future.

Again, many thanks and best wishes,
Andrei V. Pavlov
Professor
Director of the Institute of Nuclear Physics

Letter 3
(Declining an invitation)

February 18, 2008
Ref.: PGE

Professor Martin Potvin
Co-Chairman of Power-Gen Europe 2008
Spanish Power Center
15, Upshire Street
Barcelona FB9 3SP
Spain

Dear Professor Potvin,

Let me express my sincere gratitude to you for your kind invitation to participate in the International Conference Power-Gen Europe 2008 on Power Generation and Information Technologies to be held in Barcelona, Spain, 25–27 September, 2008.

Much to my regret, I have to decline your invitation since I can't cancel my commitment to deliver a course of lectures at Wisconsin University.

My best wishes for a successful Conference and apologies for any inconvenience I may have caused.

Best regards,

Ray Robinson
Professor
New York University

TASK 8. Study the following extracts from the letters of invitation paying attention to the use of verb forms and prepositions.

1. On behalf of the Organizing Committee **let me invite you to participate in** the work of the International **Symposium** on Nanotechnologies **to be held** in Paris, France, 15–19 November, 2008.
2. Therefore, **we would be most grateful if you could take** a little time to complete the attached Registration Form.
3. I hope you will wish to be among the scientific elite at our Conference.
4. Please let me know **if you require** further information. I would be glad to assist!

5. Your participation in the Organizing Committee is critical to the success of the Conference itself, and **we have made it convenient and easy for you to take part**!
6. **We look forward to cooperating with** you in the very near future.
7. We are anxious to draw up the Program of the Conference as complete as possible, therefore, don't hesitate to express your critical remarks or other proposals.
8. I trust you found the Conference on High-Energy Astrophysics and Cosmology as informative as we in the Institute for Advanced Study at Princeton, New Jersey, US did.
9. **We are delighted to correspond with** you again and **urge you to register for** the 25th Silver Jubilee International **Congress on** Control Theory to be held in Lisbon, Portugal, from 30th August to 6th September, 2008.
10. **As soon as your Registration Form is received**, **you will be sent more details about** the Congress, including **information on** the fabulous tours we have planned for the week.
11. **We are arranging** some excellent seminars and plenary sessions **based on suggestions from delegates.**
12. We truly **want you to join us** for the 25th Anniversary Celebration of the Congress since we are sure this will be a remarkable opportunity for you to be with the elite group of scientists who enjoy making friends and professional contacts, who appreciate scientific discussions and presentations, and who relish new cultural experiences.

EXERCISES

3. Use the proper verb form and fill in the blanks with the prepositions required.

Dear Colleagues,

The Italian Power Center (to delight) to announce that the 7th International Congress … European Fuel-and-Energy Complex in the 21st Century (to hold) … Milan … 15th … 17th September, 2009. The Congress (to provide) a forum … legislators, power engineers, consultants, service providers, and researchers … … the world to exchange views … how best to ensure the future development … European power infrastructure.

The Congress (to intend) to:

- discuss the urgent problems … power industry;
- facilitate the exchange … views … the use … exhaustible resources, harmful impact … environment, and development … alternative renewable power sources;
- highlight new technologies and equipment that can (to use) to implement successfully power generation.

This Congress (to give) you a unique opportunity to learn … a range … national and international experts … the rapidly developing and expanding field … power industry. It (to present) a forum … you to express your views … aspects … the issue … submitting a paper … the Congress.

We look forward … welcoming you … Milan.

Yours sincerely,

Dr. Andy Tibbett
Director of the Italian Power Center
European Fuel-and-Energy Complex in the 21st Century 2009
Co-Chairman

TASK 9. Read the following letter of invitation and write a similar one inviting participants to take part in the conference on your research area to be held in Novosibirsk.

Dear Friends,

A power engineer has always been and will be a man of technical and social progress since only through the progress and the perfecting of social and technical work conditions a power engineer can exploit the treasures of science for the benefit of all people.

These beautiful words were an inspiration for choosing the main watchword of the 6th International Power Congress:

"New Challenges and Visions of Power Engineering."

We would like to invite you to the debates of the Congress to be held in Krakow, the Cultural Capital of Poland, 7-11 September, 2008. Krakow is a unique city which has been and still is created by artists. "If you want to know the spirit of Poland, you should come to Krakow," said Wilhelm Feldman, a historian and literature critic of the 20th century. The charm and beauty of the city are enhanced by amazing monuments such as the Wawel Castle, the Mariacki Church, Sts. Peter's and Paul's Church, St. Adalbert's

Church (one of the oldest in Poland), the biggest Market Square in Europe, and a lot of other historic monuments mentioned in the UNESCO World Heritage List.

Pope John Paul II called Krakow "The City of My Life" – this is the most beautiful name which could have been given to this city with its one-thousand-year history.

On behalf of the Organizing Committee I would like to invite each of you, whose activity is closely connected with power engineering, to this magic city.

Yours sincerely,
Antoni Kuchinski
Professor
Chairman of the Organizing Committee

*Titles, dates, and venues of international events as well as names are changed.

SECTION 3

ABSTRACTS FOR CONFERENCES

DESRIPTION AND DEFINITIONS

Prospective presenters are usually asked to submit a short abstract of their presentation, which will be reviewed before the presentation is accepted for the meeting. Some disciplines require presenters to submit a paper of about 12-15 pages, which is peer reviewed by members of the program committee or referees chosen by them.

http://en.wikipedia.org/wiki/Academic_conference

Abstract management is the process of accepting and preparing abstracts for presentation at an academic conference. The process consists of either invited or proffered submissions of the abstract or summary of work. **The abstract typically states the hypothesis, tools used in research or investigation, data collected, and a summary or interpretation of the data.**

The abstracts usually undergo peer review after which they are accepted or rejected by the conference chair or committee and then allocated to conference sessions. **The abstracts may be presented as an oral talk or as an illustrated poster during the event**. **Abstracts are often published before or after the event as conference proceedings or in academic journals or online**. In some cases **submission of a full paper may be required before final acceptance** is given. In some fields (e.g., computer science), most mainstream conferences and workshops ask for the submission of full papers (rather than just abstracts) and academic program committees peer review the full paper to a standard comparable to journal publication before accepting a paper for presentation at the conference and publishing it in an edited proceedings series.

http://en.wikipedia.org/wiki/Abstract_management

Information presented in an abstract usually includes a description of: a) the research subject; b) methods used; c) results obtained.

(American English for Everyday Use, 1996).

TASK 1. Read the Description and Definitions section and answer the following questions:

1. Are the two descriptions of abstracts similar or different?

2. What editions are the abstracts typically published in?
3. Why are abstracts submitted for publication usually peer reviewed?

TASK 2. Study the grammar notes pertaining to abstract writing, paying close attention to the examples given.

GRAMMAR*

"Грамматическая структура предложения в аннотации или тезисах определяется характером сообщаемой информации: внимание читателя привлекается к результатам исследования, использованной методике, аппаратуре, условиям проведения эксперимента, положенным в работу допущениям, моделям, использованной теории и т.п. **Весьма важным для аннотаций и тезисов является правильное оформление сказуемого предложения, поскольку форма сказуемого выражает отношение автора к сообщаемой информации.** Это относится как к выбору времени глагола-сказуемого, так и к включению в его состав модального элемента. **Предложения, в которых сообщается о полученных в работе результатах, содержат сказуемое в форме Present Perfect, а те, в которых пересказывается содержание статьи, имеют сказуемое в форме Present Indefinite.**

Развёрнутые тезисы (а иногда и более пространная аннотация), которые содержат более подробное описание хода эксперимента или ссылки на предыдущие работы, могут включать предложения в форме Past Indefinite.

In an earlier paper **a method was described** whereby ... **may be derived** from experimental data.
Detailed numerical **calculations** for ... **were performed** by employing a model in which **the radiation was assumed to interact.**

Шахова и др. Некоторые рекомендации по составлению аннотаций и тезисов: Learn to Read Science. Курс английского языка для аспирантов. М.: Флинта: Наука, 2005, с.339, с. 341.
*The text is abridged.

NOTE: An extended abstract (развёрнутые/ расширенные тезисы) is a short version of a research paper. It contains the relevant information included in the paper, but omits minute details. An extended abstract comprises the main compositional parts of a full paper including references.

TASK 3. Below are presented some abstracts of talks/ papers given at conferences and published in abstract books/ conference proceedings. Look through these abstracts focusing your attention on the structure, style, grammar, and vocabulary used. Note that although passive structures are typical of abstract writing, the active structures are currently used as well.

Optimal Left and Right Additive Schwarz Preconditioning of Minimal Residual and Methods with Euclidean Norms

By *Daniel B. Szyld.*

For the solution of non-symmetric or indefinite linear systems arising from discretization of elliptical problems, two-level additive Schwarz preconditioners **are known to be** optimal in the sense that convergence bounds for the preconditioned problem exist which are independent of the mesh and the number of subdomains. These bounds are based on some kind of *energy norm*. However, in practice iterative **methods** which minimize the Euclidean norm of the residual **are used,** despite the fact that the usual bounds are non-optimal, i.e., the quantities appearing in the bounds may depend on the mesh size; see [X.-C. Cai and J. Zou, *Numer. Linear Algebra Appl.*, 9:379–397, 2002].

In this paper, iterative **methods are presented** which minimize the same energy norm in which the optimal Schwarz bounds are derived, thus maintaining the Schwarz optimality. As a consequence, bounds for the practical use of the Euclidean norm minimization are also derived, thus providing a theoretical justification for the practical use of Euclidean norm minimization methods preconditioned with additive Schwarz. Both left and right preconditioners **are considered**, and **relations between them are derived**. Numerical **experiments illustrate the theoretical developments**.

This talk is based on joint work with Marcus Sarkis. *[Abstracts, 13th ILAS* Conference, Amsterdam, 2006, p. 37.]*

Semigroups of Linear Fractional Transformations on the Operator Ball

By *David Shoiket.*

In this talk we consider semigroups of those linear operators on Krein and Pontryagin spaces which are nonexpansive with respect to indefinite metric. These semigroups involve the consideration of semi-groups of fractional-linear transformation of the operator ball over a Hilbert space, which are nonexpansive with respect to the hyperbolic metric. **We find** optimal convergence for such semigroups to interior stationary and boundary sink points **by a** unified **method**. **To do this, we use** a special

non-Euclidian "distance" which induces the original topology. **In addition, we employ** the notion of monotonicity with respect to the hyperbolic metric to get the order of convergence in terms of the numerical range of semigroup generators and its lower bounds.

Our approach leads to new results even in the one-dimensional case. For semigroups consisting of holomorphic self-mappings, **we obtain** the rather **unexpected phenomenon** of universal rates of convergence of exponential type. **In particular, in the case of** a boundary sink point **we establish** a continuous analog of the celebrated Julia-Wolff-Caratheodory Theorem. **In addition, we discuss** the so-called flow invariance (isometric) problem, and Koenigs embedding problem. *[Abstracts, 13th ILAS* Conference, Amsterdam, 2006, p. 51.]*

*ILAS abbrev International Linear Algebra Society

ON FEM/FV-SIMULATION OF THERMAL CONVECTIVE FLOWS IN UPPER EATHTH'S MANTLE

M.A. Kochergina
Department of Applied Mathematics
Novosibirsk State Technical University

The physical **problem of** thermal convection flows in the upper Earth's mantle **is described by** the Navier-Stokes equations with Oberbeck-Boussinesq approximation. **Modern** computational **methods allow for working with** complex geometry. Therefore FEM/FV-approximations for unstructured grid **are considered in the work.**

The modified finite volume **method** (MFVM) first **introduced by** E.P. Shurina and T.V. Voitovich **is used** for discretization of transport equation. **This method uses** ideology and data structure of FVM to facilitate their joint application.

In agreement with observations about FE modeling of thermal convective flows in other studies, we have isolated the violation of incompressibility constraint as the major culprit in the failure of simulation. **For the purpose of** eliminating this deficiency, several **modifications are considered in the investigation**. **These include** implementation of iterative solution technique to better accommodate the dual role of pressure to both satisfy the continuity equation and balance terms in the momentum equation. **With regard to** discretization of the convective terms, FLO **scheme** with exponential flow-oriented shape functions **has been studied**.

The proposed schemes have been validated by comparison with analytical and experimental data known from literature.

Research adviser: E.P. Shurina, D.Sc. (Eng.) [Abstracts Booklet, Graduate School Inter-University Conference, NSTU, Novosibirsk, 2000, pp. 13–14.]

NOTE: The abstracts are given in the original wording.

EXERCISES

1. Replace the Russian words given in brackets with the following English equivalents: *study, research, ongoing, consider, disadvantages, preliminary, approach, modeling, consists, accuracy.*

1. We (рассматриваем) the common problem of many variables but relatively few observations. 2. A traditional (подход/ метод) has been dimension reduction. 3. Recently, methods have been proposed to avoid some of these (недостатки). 4. We (изучаем/ исследуем) extension of the concept of optimality of experimental designs from univariate to multivariate linear models. 5. The technical part (состоит) basically of three units. 6. Mathematical (моделирование) faces various kinds of uncertainty in applications, like economy or ecology, data, knowledge, or/ and formalizations. 7. The motivation for the (исследовательский) project is to develop system reduction methods and algorithms for linear and nonlinear positive systems arising in the life sciences. 8. The current (предварительные) results include an algorithm and examples. 9. This is a report on an (текущий, происходящий в настоящее время) research project. 10. (Точность) of the present numerical scheme is demonstrated by the validation results for a unit circle.

2. Fill in the blanks with the following words: *paper, online, achieve, solves, method, devised, joint, proposed, concerning, sensitive, compare.*

1. We present a divide and conquer algorithm _____ for the extraction of the real or imaginary eigenvalues of a matrix. 2. The _____ discusses a method that is _____ in engineering for solving vibration problems. 3. The method _____ a system of differential equations. 4. In this talk we will report on recent _____ work with an international team of researchers. 5. This is a review of results _____ the theoretical analysis made. 6. We present a new iterative _____ for probabilistic clustering. 7. The method performs well and is not _____ to outliers (постороннее значение, выброс). 8. We _____ our approach and results with these methods.

9. These results are available _____ . 10. In order to _____ feasible computation times and robust results it is usual to perform some sort of dimension reduction of the variables.

3. Choose the proper verb form.

1. Results _____ for the effects of pressure on phase transition.
   a. give b. giving c. are given d. giving
2. Results _____ of an experimental study of the magnetoresistance.
   a. have been giving b. have been given c. have given d. given
3. The results _____ with the values predicted.
   a. agree b. agrees c. agreeing d. having agreed
4. The spectrum _____ of three types of components.
   a. consist b. consisting c. be consisted d. consists
5. The equations enable the fundamental parameters _____ from experimental results.
   a. to determine b. to be determined c. determine d. having determined
6. The device is capable of _____ at low temperatures.
   a. operate b. have been operated c. have operated d. operating
7. Attention _____ on the composition and degree of uniformity of the crystals grown by the hot wall method.
   a. focused b. focusing c. is focused d. has focused
8. The film _____ resistance under the effect of light.
   a. changes b. change c. changing d. is changed
9. The polymer _____ exhibits the semiconductor behavior.
   a. obtaining b. obtained c. is obtained d. obtained
10. It _____ that the change in the spectrum depends on the thermal treatment of the samples.
    a. is concluding b. is concluded c. has concluded d. being concluded

4. Use the proper verb form.

1. We (to discuss) the optimal structure of a site to boost the gateway of that site. 2. The second issue concerns two users (to interest) in communicating with each other. 3. Google has (to establish) its well-known PageRank that (to classify) the pages of the World Wide Web by (to score) each of them. 4. No surprise then that everyone (to wish) to maximize its own PageRank. 5. We (to present) an efficient implementation of inexact Krylov-Schur algorithm to find a few eigenvalues of large unitary matrices. 6. We (to show) backward stability of the algorithm and (to report) numerical results. 7. Applications (to present). 8. Unavoidable small technological deviations (to have) essentially no effect on the Fermi level

position. 9. These curves commonly (not to fit) the standard equations. 10. Good agreement (to obtain) when correlation effects are taken into consideration.

TASK 4. Study the abstract structure and sample phrases enclosed. Write an abstract of a paper on your research area to be presented at an international conference.

ABSTRACT STRUCTURE

The subject studied and the method used

The mechanism of … is/ has been investigated using the method/ technique of …
The structure of … is studied by (the method of) … .
The process of ... is examined making use of the technique of … .
The function of ... is/ has been analyzed by … .

The results obtained

The relation between … has been established.
The parameters of … have been calculated.
Some information concerning … has been obtained.
The properties of … have been evaluated.

The conclusion has been made that … .
An assumption was that … .
The results suggest/ indicate that … .

(Based on American English for Everyday Use, 1996).

SAMPLE PHRASES

(Based on authentic abstracts)

The aim of this paper is to present preliminary results of … .
The talk discusses/ presents … .
We consider a problem of … .
We introduce/ present a new ... method for .../ approach to … .
We also examine the ways in which the Internet has been integrated into contemporary text-books … .
We consider/ discuss/ show/ study … .
In the present talk, we consider the case of … .
The problem under consideration is important for … .

In this talk, we focus on … .
In this work, we explore … .
In the present work, we consider … .

The topic of ... has been investigated extensively in the past decades … .
The method performs well and is not sensible to … .
Relevant methods for comparison include … .
Recently, methods have been proposed to avoid … .
We compare our approach with these methods … .
A traditional approach has been … .
The talk discusses/ presents … .
We consider a problem of … .

We illustrate the performance of this technique with … experiments … .
I/ we present results/ a new implementation of ... method ... .
We ... compare the solution method to that of … .
I/ we further describe applications to problems arising in … .
To obtain the ... version of the algorithm, we develop a general theory of …
This theory enables us to construct … .
It is worth to note that the method described above can also be applied … .
We discuss a complete solution to this problem of … .
Several ... results will be given during the presentation of this paper.
The accuracy of the present … scheme is demonstrated by means of validation results … .
Finally, we also construct … .
Finally, we verify our algorithm with a computer program in C++ and JAVA … .
A major drawback of the approach is … .

These results are available online.
This project is sponsored by... .
The research was supported by RFBR* grant ... .
*RFBR abbrev Russian Foundation for Basic Research РФФИ сокр. от Российский фонд фундаментальных исследований
[Abstracts, 13th ILAS Conference Amsterdam, 2006, pp. 53, 55, 61, 66–67, 69, 72–73,77–78, 81, 83, 93–95, 99.]

SECTION 4

WRITING A FULL PAPER

CONFERENCE PROCEEDINGS

DESCRIPTION AND DEFINITIONS

In academia, **proceedings are the collection of academic papers that are published in the context of an academic conference**. They are usually distributed as printed books (or sometimes CDs) either before the conference opens or after the conference has closed. Proceedings contain the contributions made by researchers at the conference. They are the written record of the work that is presented to fellow researchers. The collection of papers is organized by one or more persons, who form the *editorial team*. The quality of the papers is typically ensured by having external people read the papers before they are accepted in the proceedings. This process is called reviewing. Depending on the level of the conference, this process including making revisions can take up to a year. The editors decide about the composition of the proceedings, the order of the papers, and produce the preface and possibly other pieces of text. Although most changes in papers occur on basis of consensus between editors and authors, editors can also single-handedly make changes in papers.

Proceedings are published in-house, by the organizing institution of the conference, or via an academic publisher. For example, the Lecture Notes in Computer Science by Springer Verlag take much of their input from proceedings. Increasingly, proceedings are published in electronic format on CD only, or distributed on Internet.

A number of academic journals also use this name in their title, for example, Proceedings of SPIE*, although the scientific quality of publications in proceedings usually is not so high as that of international scientific journals.

http://en.wikipedia.org/wiki/Proceedings

*SPIE abbrev the Society of Photo-Optical Instrumentation Engineers

TASK 1. Read the text defining and describing conference proceedings and answer the following questions:

1. What procedure is established to ensure the quality of papers before they are accepted in the proceedings?
2. What institutions are proceedings published by?

SCIENTIFIC PAPER STRUCTURE

NOTE: The layout of a conference paper is similar to this of a journal article.

TASK 2. Read the passage describing a scientific paper structure and answer the following questions:

1. Is the layout of a scientific paper written in English different from the layout of scientific papers published in Russian?
2. Do you agree with the requirements set for the title of a scientific paper?

The layout of a scientific paper

Many people find it difficult to write a scientific paper. The aim of this article is to help even the most uncertain writers to produce a clear and well presented piece of writing. The layout for a scientific paper is normally:

- a title
- an abstract
- an introduction (which is made up of a brief literature review)
- materials and methods
- experimental results
- conclusions
- acknowledgements and
- a list of references

Titles for essays and scientific papers

The title should indicate what the essay contains and be as concise as possible. Sacrifice brevity for clarity. **The title should be a concise summary of the paper.** Include important nouns or key words and then join together within the title.

How to write titles

Ensure that the title:

- Describes the contents of the paper.
- Is accurate, concise and specific.
- Has as many key words as possible and is modelled on the style adopted by the publication for which you are writing.
- Is as easy to understand as possible.

The title should not:

- Contain a full stop, unless it is an informative title

- Contain unnecessary words such as “Some notes on …” or “An investigation into ... “
- Contain abbreviations, formulas and acronyms
- Promise more than is in the paper
- Be too general

In most cases when writing a title of a scientific paper the title should be followed by the author's name and full address of the institution where the work was carried out. If an author has moved, his/ her new address should be added as a footnote.

http://en.wikipedia.org/wiki/Scientific_writing#The_layout_of_a_scientific_paper

TASK 3. Read the passage given below and answer the following questions:

1. What are the most widespread types of scientific articles/ papers?
2. What is a research paper?

There are different types of scientific papers/ articles, the most widespread being **research papers, discussion papers, and review papers. A research paper is a written and published report describing original research results.** In a review paper, the author aims at generalizing the existing theories, approaches, points of view, etc. at a new theoretical level, while the discussion paper presents a critical approach to the points of view of the same problem.

Each scientific paper should have, in proper order, its **Introduction**, **Materials and Methods, Results, Discussion and Conclusion**. An effective way to proceed in writing a scientific paper is to answer these four questions, in order: What was the problem? Your answer is the Introduction. How did you study the problem? Your answer is the Materials and Methods. What did you find? Your answer is the Results. What do these findings mean? Your answer is the Discussion.

(R. A. Day. How to write a scientific paper. Philadelphia, 1979. Borrowed from N. K. Riabtseva, 1999).

ABSTRACT WRITING

DESRIPTION AND DEFINITIONS

Abstract*. A vital piece in having an article being accepted for publication in an international journal, of being accepted as a speaker at an international conference is your ability to write good abstracts. Every journal and every conference will expect your research paper to be accompanied by an abstract. The abstract will be read first, and its clarity will strongly influence whether or not your work is further considered for publication or presentation.

An abstract is an extract of the essence of your work. It gives what was discovered, how it was done, how it fits with other research, and what it suggests for future research.

The difficulty of writing an abstract is that it must be very short. Most journals' instructions tell authors to send in abstracts of 100 words or less. Conference abstracts** sometimes require as few as 50 words.

Your abstract will be read by far more people than will ever read your paper. Consequently take the time and effort to polish it into a small perfect shining crystal of information.

(Based on "Writing and Presenting in English: the Rosetta Stone of Science" by Peter Young, 2006).

An abstract comes at the very beginning of your paper. It is usually required for scientific or mathematical papers that have involved the accumulation of data or facts based upon scientific experiments or formulas. Sometimes, however, it is required for papers written on historical or other subjects. **An abstract is simply a short summary of your paper**. It is no more than a paragraph in length and should be written after you have completed your entire paper even though it comes at the beginning of your work. An abstract tells the reader before he or she begins to read your paper exactly what your paper will be about. **[Rachael Stark, Research and Writing Skills Success in 20 Minutes a Day. p. 102].**

The abstract allows the reader to survey the content of an article quickly. It is self-contained, fully intelligible without reference to the body of the paper. **Information or conclusions that do not appear in the paper are not supposed to appear in the abstract.**

(Based on a Manual-Publications of the American Psychological Association, 1974).

Some journals ask that you follow your abstract with **a list of 3-10 key words or phrases**. These terms will be used to cross-index your article/ paper under standard headings in large databases. Therefore, besides choosing **key words** specific to your paper, include some terms that categorize your paper more generally. **[Michael Jay Katz. From Research to Manuscript: A Guide to Scientific Writing. p. 115].**

An abstract of a research paper usually includes:

1. Statement of a problem;
2. Methods;
3. Results;
4. Conclusion.

An abstract of a review or theoretical paper should include:

1. Topics covered;
2. Central thesis;
3. Sources used (i.e. review of published literature, or current research bearing on topic and conclusions drawn).

(Based on a Manual-Publications of the American Psychological Association Abstracts, 1974).

TASK 4. Read the Description and Definitions section. Answer the following questions:

1. What information does an abstract of a research paper usually include?
2. Why is your ability to write good abstracts so important?
3. What is the difficulty of writing a good abstract?
4. When is it recommended to write an abstract?

TASK 5. Study the following grammar and vocabulary comments and sample phrases typical of abstract writing.

Characteristic Features of Abstracts

- The use of Present Tenses. Past Tenses are used when describing experiments, research that served as the basis for some conclusions.
- Passive forms: subject + (object) + is (are)/ was (were)+ past participle
- Active forms are also possible. In this case you may use the following words as the subject: *I, we, the author(s), investigation, paper, experiment, theory, etc.*

SAMPLE PHRASES

A number of new experiments **were conducted** to confirm .../ We **conducted** a number of new experiments to confirm ...

Organic waveguide laser structures **are described** .../ We **describe** organic waveguide laser structures ...

Switching characteristics ... **are investigated**/
We **investigate** switching characteristics ...

The following results **were obtained** .../
The authors **obtained** the following results ...

A new algorithm **is presented** .../
I/ We **present** a new algorithm ...

Recent studies of lasing and stimulated emission **are presented** .../
I/ We **present** recent studies of lasing and stimulated emission ...

Numerical solutions of a proposed model **are reported** .../
I/ We **report** numerical solutions of a proposed model ...
It is shown that a small core-cathode spacing is advantageous/
The results **show** that small core-cathode spacing is advantageous.

These effects **must be taken into account** .../
We **must take into account** these effects ...

This technique **has been used to** construct a nonlinear periodic optical waveguide structure/
The authors **have used** this technique to construct a nonlinear periodic waveguide structure.

PAY ATTENTION TO THE USE OF COMPLEX SUBJECT

The Maxwell-Garnett model **is** considered and **found to provide** a good fit to the experimental data.

The resulting internal electric field **was found to be** up to an order of magnitude higher than the initial poling field ...

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* Examples are based on authentic sources and Владимирская Е.В. и др., 2000.

VOCABULARY

The paper ***analyzes/ considers/ describes/ discusses/ examines/ explores/ investigates/ outlines/ reviews/ studies*** *... .*

The results ***demonstrate/ prove/ show/ suggest*** *... .*

The following results have been ***achieved/ obtained/ received***.

A new phenomenon has been ***detected/ discovered/ observed/ revealed***.

SAMPLE ABSTRACTS

Message Encoding and Decoding Using Chaotic External-Cavity Lasers

S. Sivaprakasam and K. A. Shore

Abstract – Synchronization of chaotic external-cavity diode lasers **has been studied** in a master-slave configuration. A message is encoded into the chaotic master slave by amplitude modulation and transmitted to the slave laser. **A scheme** for decoding the message at the slave **is demonstrated**.

*Index Terms** – Chaos, diode lasers, encryption, synchronization.

*Index terms synonym: key words

I. Introduction

A diode laser can be routed to chaos ... *[IEEE Journal of Quantum Electronics, Vol.36 No.1, January 2000, p. 35.]*

VERIFICATION AND VALIDATION OF SIMULATION MODELS

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ABSTRACT

This paper discusses verification and validation of simulation models. The **different approaches to** deciding model validity **are presented**; how **model verification and validation** relate to the model development process **are discussed**; various **validation techniques are defined**; conceptual

model validity, model verification, operational validity, and data validity are described; **ways to** document results **are given**; and **a recommended procedure is presented**.

I. INTRODUCTION

Simulation models are increasingly being used … *[Proceedings of the 1998 Winter Simulation Conference, D.J. Medeiros, E.F. Watson, J.S. Carson and M.S. Manivannan, eds. p. 121.]*

EXERCISES

1. Fill in the blanks with the following verb forms: *drawn, investigates, described, recommended, provide, appears, used.*

1. The present study _____ the synergy between electrochemical capacitors (ECs) and flywheels as energy storage subsystems. 2. EC and flywheel technologies are _____ and attention is _____ to the potential advantages and disadvantages of each. 3. We _____ seven applications for energy storage subsystems along with the potential market for each of these applications. 4. A spreadsheet model was _____ to analyze and compare the costs of various system configurations. 5. It _____ that a synergistic relationship exists between ECs and flywheels. 6. Further investigation is _____ to quantify the performance and economic tradeoffs of this synergy and its effect on overall system costs.

TASK 6. Write an abstract of your paper to be published/ published in conference proceedings/ journal in Russian.* Study the instructions, template (pattern), and the comments given.

Below are cited instructions (recommendations) of the Purdue University Online Writing Lab (OWL), USA:

1. Write 1–2 introduction sentences that explain topic, purpose, and research question(s).
2. Write 1–2 sentences describing your research methods (this may also include the type of data).
3. Write 1–2 sentences describing the results/ findings.
4. Write 1–2 sentences containing your conclusions and recommendations.

We start with writing the title of the paper and author(s)'s name(s), affiliation, and address:

New Solution to the ... Problem

Sergei Korotkov, Vladimir Kovalenko

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20 K. Marx Prospect, Novosibirsk 630092, Russian Federation

Comments: First of all, if you are not sure about the word "решение", that is, you know two words with this meaning, look it up in the dictionary. The mathematical term is *solution*.

To be certain in the usage of the preposition after the word *solution*, look it up in the Combinatory Dictionary of Scientific Usage (N.K. Riabtseva, 2000). What we find is the following: *solution to a problem* and *solution of an equation.* For our title we take the preposition *to*.

Pay attention to the "computation time". It is a term and should be checked in a specialized dictionary or in a paper on a similar topic written in English. As to the grammar, it is rather simple (see the instructions), but everything should be exact and hence correct.

Abstract. This paper suggests a new solution to the ... problem and shows that this solution requires less computation time than ... and is as precise as the traditional solution. The ... method has been applied to ... . The solution could be used in such applied fields as ... . Examples of applying the new solution to solving the ... problem are given.

*Some Russian scientific publications require that the authors enclose an abstract of their paper in English as well.

I. INTRODUCTION

DESRIPTION AND DEFINITIONS

An introduction contains material that should be read before the rest of the paper. Its purpose is to provide background information that the reader needs to understand the research project. Someone who feels inadequately prepared for a paper is unlikely to read it, so it is to your advantage to acquaint the reader with the subject. **An introduction typically includes the reason for undertaking the project, relevant findings, and specialized background facts.**

The reader is assumed to have a basic familiarity with subject. Thus the introduction excludes elementary facts and presents information relevant to the paper that only a specialist would be expected to know. **The introduction must clearly specify the nature and scope of the problem studied or the questions addressed. It includes a brief summary of previous work in the field to bring the reader up to date on the topic.** Naturally, you can summarize your own previous work, but an introduction is not a place to showcase your talents.

The introduction aims to evoke interest and should also be brief to avoid losing the reader's attention. **If the writing is clear and concise, two or three paragraphs will usually suffice. Essentially, the introduction covers three parts: *(a)* the general background; *(b)* previous findings by others; and *(c)* your examination of the questions addressed.**

Show the logic by using signaling words and phrases such as:
It was previously believed that … .
However, recent studies have shown ... .
Thus, it appears that ... .

The beginning: Briefly summarize relevant current knowledge, supporting your statements with references as necessary.

***The middle*:** Move on to what is not known (or a problem with the known). Having summarized the established facts, move on to areas where there is less or no knowledge, or where the evidence is conflicting.

The end: In the final paragraphs: (a) clearly state the purpose of your work. Then (b) briefly summarize your approach, if this is appropriate and, possibly, your results.

(a) State the purpose of your work.

Every study sets out to answer a specific research question. This should be stated explicitly in the final paragraph of the Introduction. Make sure it follows logically from the preceding sentences; these should have been structured so that the gaps or controversies in the knowledge are obvious.

1. **Use a new paragraph to state why the study is being done.**
   Don't state it clumsily, for example: *The reason for doing this study was ... .*
2. **Instead, use signaling words and phrases to highlight the question:**
   However, it is not known whether ... .
   To answer this question (such-and-such) was investigated ... .
   To clarify the role of X in Y, we ... .
   To determine whether ... .

(b) Summarize your approach (if appropriate). Having stated the research question, it may be appropriate to state how you set out to answer it. Mention the experimental method and the material or species. **If appropriate, briefly state your results.**

Verbs in the introduction are usually in the present tense for ongoing truths and others' findings, but in the past tense for your own methods and findings in the research project.

(Based on "An outline of scientific writing" by Jen Tsi Yang, 1999).

VOCABULARY: WORDS AND PHRASES

1.1 General remarks (setting a goal):

an aim, goal, objective, purpose, subject, task; to aim, attempt, concentrate on, devote, intend; to examine, inquire, present, show, study, etc.

The chief/ general aim …

The central/ key/ ultimate goal …

The major/ primary task of this paper/ study is to investigate …

The present paper/ investigation goes (inquires) into/ focuses on/ deals with …

In this article/ section I aim to determine/ I attempt to explain/ I intend to give/ show/ develop/ provide …

I examine the nature of …

I have two goals in mind in writing this paper/

In writing this paper, I had three goals in mind.

1.2 Summary lead (краткое изложение содержания статьи):

The structure of the article is as follows. The first section reviews/ describes/ clarifies/ outlines/ sketches … . Section 2 portrays/ dwells on/ enlarges upon/ shows that … . Section 3 argues that … . The final section proposes/ summarizes/ spells out in (more) detail … .

In this article I review/ debate the problems (and advantages) of …, and argue that … . I claim/ demonstrate/ suggest that (insufficient attention has been paid to) … . In particular, it will be shown that … .

In this paper, I attempt to clarify the relation of … and … . To do so, I first present … . I then attempt to show that … . In conclusion … is considered.

This paper presents a new (complex/ algorithmic/ structural) approach to the study of … . The empirical results are described in Section 1. In Section 2, I will address/ discuss/ characterize/ comment on/ specify/ tackle

… . Section 3 turns to …/ presents theoretical results. Section 4 concludes with a discussion of implications/ consequences of … .

This paper proposes a new methodological framework within which … can be studied. After analyzing the data, it is concluded that … . The results of the study are evaluated and assessed in the light of the problems of … . Additionally, … is examined.

(Based on Н.К. Рябцева, 2000).

AIMS AND OBJECTIVES

Immediate objective — первоочередная цель
Ultimate objective — конечная цель
According to this object in view – в соответствии с поставленной целью.
To this effect — для этой цели
With this end in view – с этой целью
Sentences typical for this part of the paper:

Целью	работы	являлось	определение	параметров
The aim	of the study	is to	determine	the value, the lattice constants, the coefficients
The chief purpose	of the investigation	was to	provide	evidence for, explanation for the fact
The main task	of the experiments	has been to	examine	the difference in, the regularities of
The primary aim	of the paper	is to	establish	the mechanisms, the behavior, the properties
The object	of the experiment	was to	estimate	the effect of … on

(Based on Е.В. Владимирская и др., 2000).

TASK 7. Read the Description and Definitions section and answer the following questions:

1. What is the aim of the Introduction?
2. What information should it include?

TASK 8. Complete the following sentences typical of the Introduction (on the basis of the research you are involved in).

1. The chief aim of our investigation is … .
2. I shall concentrate here on … .
3. The structure of the paper is as follows … .
4. It might be wise to begin with … .
5. In this paper we attempt to clarify … .
6. To do so, we first present … .
7. We then try to show that … .
8. Here it is reasonable to mention that … .
9. We conclude the article with a few comments on … .
10. I want to end by emphasizing that … .

TASK 9. Study the Introduction section, paying close attention to the structure, grammar, and vocabulary of this compositional part of the scientific paper. Write a short version of the Introduction to the paper you are working at.

II. MATERIALS AND METHODS

DESRIPTION AND DEFINITIONS

The Materials and Methods section describes your experimental procedures. It is a straightforward recounting of your approach. This section should not be too lengthy; some information may be of lesser interest and can be de-emphasized by using smaller print.

Experimental conditions are briefly but precisely described. Novel methods should be described in detail, but published methods should merely be cited by appropriate references to both the original and any published modifications.

Thus, this section should deal with four main topics:

1. Equipment and materials used
2. Experimental design
3. Observations made
4. Methods of analysis used, statistical (and chemical if required) data

Verbs in this section are generally written in the past tense. Use of the passive voice is also acceptable, especially as a means of placing emphasis. For instance,

Enzyme A was purchased from Sigma

is better than

We purchased enzyme A from Sigma

because emphasis here should be on the material, not the authors.

VOCABULARY: WORDS AND PHRASES

To investigate/ determine…, it was planned to simulate …/ it was decided to measure … .

To test the hypothesis, we conducted laboratory experiments using … .

To assess/ obtain …, we turned to … .

To better understand …, we selected items/ samples/ materials among/ from … .

In order to measure …, it is crucial to calculate … .

One way to judge how long/ stable is … is to estimate/ measure/ establish/ determine … .

To gain more specific information on …, a second experiment was conducted.

Continuing our search for …, we see that a good indicator of the presence of … would be … .

We have developed a technique/ method/ approach/ procedure that relies on … .

The reason why we used such methods/ computer simulations is … .

To elucidate the details of how … functions, our research team used computer simulations.

The trials/ experiments … were used to determine …/ included four treatments.

This result led us to experiment with/ to test/ probe/ simulate … .

Further experiments … revealed relations between … and … .

Recent experimental studies … served to show that … .

(Based on Н.К. Рябцева, 2000).

METHODS, TECHNIQUES, PROCEDURES

Method, process, procedure, approach, technique – метод

Technique, procedure, approach – способ

Procedure, technique – прием

Procedure, technique, approach – методика
Approach, way – подход
Technique, techniques, way – процедура

NOTE: Все слова, означающие *метод, способ, подход* и т.д., в английском варианте по мере возможности следует опускать.

X-ray diffraction analysis – метод рентгеноструктурного анализа

Для перевода выражений *заключаться в том, что; состоять в* используются глаголы *to be to, to consist in, to involve, to include.*

Метод	состоит	в измерении	фазового сдвига
The method	consists in	measuring	the phase shift
	consists in	the measurement of	
	involves	measuring	
	involves	the measurement of	
	is to	measure	

MERITS AND DEMERITS

Merit/ advantage – достоинство, преимущество
Limitation/ disadvantage/ drawback – недостаток, ограничение
Merits and demerits/ the pros and cons/ strengths and weaknesses – за и против
To have/ to offer/ to present advantage over – иметь преимущество
To have/ to suffer from limitations – иметь недостаток
To put/ place/ impose/ set limitation/ restriction on – накладывать ограничение (на)

NOTE: Pay attention to different ways of expressing the following phrase:
Преимущество нового метода **состоит в простоте**.
The advantage of the new method **is the simplicity**.
The advantage ... **is in its simplicity**.
The advantage ... **is due to the simplicity**.
The advantage ... **is due to the fact that it is simple.**

CONDUCTING AN EXPERIMENT

NOTE: Если измерения проводятся при условиях, когда какой-либо параметр имеет конкретное числовое значение (например, при температуре 20°C), ставится определенный артикль.

at **the** temperature of – при температуре
at **the** pressure of – при давлении
at **the** voltage of – при напряжении
at **the** concentration of – при концентрации
at **the** wavelength of – при длине волны

Сочетание прилагательного с существительным, стоящим в единственном числе, требует неопределенного артикля. Исключение составляет только прилагательное *the same*.

at **a** definite energy – при определенной энергии
at **a** variable illumination – при меняющемся освещении
at **a** given pressure – при данном давлении
at **the** same voltage – при том же напряжении

Очень удобными конструкциями, не имеющими аналога в русском языке, являются выражения *as high as* и *as low as.*

At the voltage as high as 2000 volts. – При напряжении, достигающем 2000 вольт.

At the voltage of as low as 10 mV. – При напряжении, достигающем 10 милливольт.

NUMERICAL EXPRESSION

5 meters long – длиной 5 метров
One point five meter in diameter – полтора метра диаметром
3 cm thick – толщиной 3 см
20 mm wide – шириной 20 мм
22 m in circumference – 22 метра в окружности

RANGE

In/ over the range of — в диапазоне
Over all pressure ranges — во всех диапазонах давления
Over a wide range of — в широком диапазоне
Within the range from … to — в пределах от… до

GRAMMAR NOTES

To allow/ to permit/ to enable – позволять, давать возможность.

Эти глаголы требуют дополнения – что позволять или кому позволять.

Распространенные в русском языке конструкции типа «позволять что-то делать» переводятся с помощью нескольких стандартных приемов.

1. Инфинитив в действительном залоге:
   The method ***enables/ allows/ permits us/ one to measure*** *high temperatures.*
2. Инфинитив в страдательном залоге:
   The method ***enables/ allows/ permits high temperatures to be measured****.*
3. Отглагольное существительное:
   The method ***enables/ allows/ permits measurements*** *at high temperatures.*
4. Вместо существительного можно употреблять герундий:
   The method ***enables/ allows/ permits measuring*** *at high temperatures.*

Те же выражения можно перевести конструкциями *to make it possible* + инфинитив; *to make possible* + герундий или существительное.

Our results ***make it possible to apply*** *computer simulation.*

Our results ***make possible the application*** *of computer simulation.*

EXERCISES

2. Use the proper verb form.

1. Investigations were (to perform) at the temperature of 90 K in the external magnetic field. 2. Absorption spectrum (to have) been investigated in the 470–4000 cm^{-1} range. 3. Calculations (to indicate) that oscillations at frequencies as high as 3000 MHz may be possible. 4. An alternative approach is (to observe) the crystal surfaces. 5. The process involved heating (to follow) by cooling. 6. The advantage of silicon over germanium (to be) in lower cost. 7. Gold (to offer) the advantage of being chemically stable. 8. The limitation of the method is due to the fact that high temperatures are purely suited with the technology for (to fabricate) matrices.

3. Study the sentences given below. Change the parts of the sentences in the bold type by replacing infinitives by nouns or gerund in accordance with the following pattern:

*The curve **allows us to estimate** the energy barrier.*
*The curve **allows estimating** the energy barrier.*

1. The equations **enable the fundamental parameters to be determined** from experimental results. 2. The present investigation **allows us to compare** the available data. 3. This **made it possible to determine** the nature of the anomalous resonances in the spectral range 1000–3200 cm^{-1}. 4. This **permitted the experimenters to lower** the condensation temperature. 5. The experimental data **enabled the researchers to confirm** the advanced hypothesis.

(Based on Е.В. Владимирская и др., 2000).

III. RESULTS

DESRIPTION AND DEFINITIONS

Results are general statements that interpret the raw data obtained from experimental measurements. The Results section is the meat of a paper, **the most important part of a study. All other sections serve subordinate roles**, either preparing the reader for the Results, or providing supplemental information to augment the findings. **The results are presented as text, illustrations, and tables**. All three forms may be used, but the same data should not be repeated in more than one form.

NB. The data presented in tables, and graphs should be understandable without reference to the text, and the text should be clear without reference to the tables and graphs.

The text may be any length. Sometimes a statement as brief as, "The results are shown in Figures 1–4 and Tables 1–111," is sufficient. For clarity, **long passages of text are often organized by topic into subsections**, with a subheading for each topic. The subheadings help the reader locate paragraphs that are of personal interest. **Sometimes the Results and Discussion are combined into one section.** This is particularly useful when preliminary data must be discussed to show why subsequent data were taken.

Use the past tense of verbs in the Results section, except when referring to figures and tables. Use the present tense when referring to figures and tables.

(Based on "An outline of scientific writing" by Jen Tsi Yang, 1999).

VOCABULARY: WORDS AND PHRASES

Our investigations/ computer simulations/ analyses of these data reveal/ show … .

The findings of this study reveal (that) … .

Our study of … indicates that …/ points to the existence of … .

This study presents evidence to/ lends support to the hypothesis of … .

Our material/ examination reveals many ways in which this algorithm operates.

Section 2/ Figure 1/ The following table shows/ has shown that … .

Our exploration has brought the following points to the foreground.

In general, the results of our research indicate … .

Seen as a whole, our results suggest that … .

The results obtained highlight the potential of adapting … to … .

Taken together, our results reveal agreement between … and …

DATA

Data (on, of, for) – данные, сведения

Information (for, about) – данные, информация; reliable information – достоверные данные

Findings (on) – данные

Results (on, of) – результат

DEPENDENCE

Dependence of … on/ upon – зависимость … от

To depend on – зависеть от; depending on – в зависимости от

To be dependent on – зависеть от

To be independent of – не зависеть

As a function of – в зависимости от

INFLUENCE

To act on/ upon – воздействовать на

To affect – влиять, вызывая изменения свойств; воздействовать на; to effect adversely – оказывать отрицательное влияние

To effect – производить; to effect a change in a plan – производить изменения в плане

effect (on/ upon) – действие, влияние; воздействие; to have/ produce an effect on – иметь (обычно желательный) результат; подействовать

to influence – влиять
influence (on) – влияние, действие, воздействие

NOTE: The verbs ***to affect, to effect, and to influence*** require a direct subject (noun without preposition): *Presence of impurities does not affect the Curie point.*

EXERCISES

4. Fill in the blanks with the following prepositions: *of, on (upon), under.*

1. The results were found to be independent _____ the distance from the contact. 2. The optical threshold depends _____ the dopant nature and is independent _____ its concentration. 3. Little dependence _____ the effective mass _____ the temperature was observed. 4. Many properties of molecules depend _____ whether they are polar or nonpolar. 5. Unavoidable small technological deviations have essentially no effect _____ the electrical properties of the material. 6. The film changes resistance _____ the effect _____ light.

5. Use the proper verb form.

1. The polymer (to obtain) exhibits the semiconductor behavior. 2. The domain configuration (to reveal) a less regular character. 3. Condensation (to proceed) as usual (to give) the corresponding compounds. 4. The intensity (to vary) over the whole spectral range. 5. The temperature (not to change) during the experiment. 6. Field intensity was (to keep) constant.

(Based on Е.В. Владимирская и др., 2000).

IV. DISCUSSION

DESRIPTION AND DEFINITIONS

The Discussion takes the data reported in the Results section and interprets the findings, evaluates their significance, and examines the implications. This is probably the most challenging section to write and will demonstrate how well you understand the results. This does not mean that the discussion should be lengthy, especially if there is little to discuss. In fact, some journals discourage discussion beyond four or five double-spaced typed pages.

The following suggestions are general guidelines for developing the Discussion:

1. Begin the discussion with a topic sentence that returns to the question raised in the Introduction section.

2. Mention new findings, knowledge, and concepts that resulted from your study. Do not, however, introduce data that were not presented in the Results section.

3. State whether you have achieved your goal of answering the research question or have found exceptions and unexplained results.

4. Discuss any theoretical implications and possible applications of your findings.

5. Present the conclusions concisely. If additional experiments are needed to validate your results, be sure to qualify your conclusions.

6. Suggest future studies, if any.

7. End your discussion with a short summary or conclusion.

(Based on "An outline of scientific writing" by Jen Tsi Yang, 1999).

VOCABULARY: WORDS AND PHRASES

Choice of words

Prove is too strong a word. Your assessors will prefer you to state your conclusions less equivocally. In descending order of strength:

These results show/ demonstrate … Very positive.

These results indicate ... Slightly less strong.

These results support ... Useful if you need to demonstrate agreement with a hypothesis or someone else's work.

These results suggest ... Useful as a politeness if your results contradict a body of evidence.

These results imply ...

Appear is also a useful word. It sounds positive, but much less dogmatic.

It is acceptable to use hedging words; science is rarely cut-and-dried.

May be, might be, could be, probably, possibly

But don't go to extremes of hedging.

Acceptable: These results suggest that A is the cause of B.

Acceptable: These results suggest that A may be the cause of B.

Too cautious: These results suggest the possibility that A may be the cause of B.

(Based on "Writing for Science and Engineering" by Heather Silyn-Roberts, Silyn-Roberts, 2002).

Results and their interpretation:

- What do these findings/ observations/ results/ numbers/ figures mean?

These results/ observations need careful explanation/ require a careful study.

The factors/ effects underlying these results remain unclear.

These mechanisms are to be explicated.

We are faced with the problem of defining (accounting for) …/ finding an explanation for … .

- This analysis ... serves to provide an explanation/ interpretation for …

The most logical explanation for …/ My explanation … is (based on the concept of)

This point requires (some) justification.

- A few words of comment are necessary here.

With regard to …, a certain clarification is necessary.

The following ... is meant as an explanation.

Our observations ... support the supposition that … .

Our results ... indicate/ suggest that/ rule out… .

Unsolved/ remaining/ new problems; obstacles and barriers:

One of the more fascinating aspects of the phenomenon ... is that … .

One startling development is that … .

A striking feature of the calculation is that ... .

At a certain point one begins to wonder whether … .

It seems surprising to find that … .

One cannot help wondering about ... .

Other bizarre examples abound.

New data hint at the existence/ scope of … .

There is a discrepancy/ mismatch/ conflict/ contradiction ... between ... and … .

There is a striking similarity between … and … .

At present we cannot explain the discrepancy between … and … .

What is less easy to explain is how … can induce ... .

There is a danger in relying too much on … as an explanation.

There is no conclusive evidence on the trend of … .

There are no clear ways (procedures) of testing … .

There may be instances which are uncertain/ about which we are uncertain.

There is (considerable) confusion over this difference.

INTERPRETATION

To explain – объяснять, делать ясным, толковать

To interpret – объяснять, проникать в суть, толковать

To account for – объяснять причину *(How do you account for the fact that ...? – Как вы объясняете, что ..?)*

To give, to provide an/ the explanation (interpretation) for – давать объяснение

To offer, to suggest an/ the explanation – предлагать объяснение

COMPARISON

To correlate (with/ to) – находиться в определенном соотношении, связи

To compare (with) – сравнивать, сличать. (As) compared (with/ to), in (by) comparison with (to) – по сравнению с ; not to be compared to – не может сравниться с; to compare favorably with something – успешно выдержать сравнение с; to make/ give (a) comparison of … with; to make/ give (a) comparison between … and … - проводить сравнение

Comparison studies – сравнительное изучение

Against/ as against/ over/ vs./ vers./ versus – по сравнению с

FIT AND MATCH

Fit – согласование, соответствие, подгонка

To fit – точно соответствовать

Match – согласование, соответствие

To match – соответствовать

NOTE: Несмотря на то, что глаголы *to match* и *to fit* переводятся как *соответствовать*, между ними существует различие. *To fit* имеет смысл подгонки; *to match* обязательно предполагает наличие парного элемента.

To make the theory fit the data – подгонять теорию к данным.

Lattice matching – согласование параметров решеток.

INTERRELATION

Relation of … and (between … and) – связь между

Relationship to (between) – отношение к (между)

Connection with (between) – связь с (между)

Interrelation/ interconnection/ interdependence/ interplay – взаимосвязь

EXERCISES

6. Fill in the blanks with the following prepositions: *between, for, to, with.*

1. This is accounted _____ by the reaction taking a different course. 2. The model offers the explanation _____ the position of the absorption peak. 3. When compared _____ copper, this polymer is a poor conductor. 4. There is a direct relationship _____ the transmission spectrum and the density of the states function. 5. A whole series of properties can be associated _____ amorphous structure of the film. 6. The existence of a lower critical temperature is related _____ the smearing of the Fermi distribution. 7. The emission can be connected _____ the transitions marked by arrows in Fig. 1.

(Based on Е.В. Владимирская и др., 2000).

V. CONCLUSION

DESRIPTION AND DEFINITIONS

In the Conclusion you write about prospects and applications of your work, proposals for further research and, finally, give concluding remarks (summary).

How to write it

- Important: There should be no new material in this section. Each conclusion must be based on material that has already been presented in the main body of the report.
- Each conclusion should be related to specific material.
- Each conclusion should be brief (since the full explanation is given elsewhere in the document).
- The Conclusions section not only reviews the results or observations – it also interprets them. In this section, as in the Discussion, you can therefore point out:

1. what is important and significant
2. why the results or observations are valid
3. any criticisms or qualifications you may have of your own work

- A numbered or bullet-pointed list can be used if appropriate. Start with your main conclusion, then present them in descending order.

(Based on "Writing for Science and Engineering" by Heather Silyn-Roberts, Silyn-Roberts, 2002).

VOCABULARY: WORDS AND PHRASES

Prospects and applications: to *apply directly/ gradually/ partially/ in addition to/ in combination with; (to make) easier/ facile/ potent, ideal for; to avail, clear away, (improve) productivity/ usefulness, fulfill (the needs), succeed in, ease a burden/ reduce the harm (of the underproduction problem); (promote) scholarship/ (develop) businesses/ (correct) vision/ coordinate (efforts)/ blend (technologies)/ block (angiogenesis)/ put theory into practice/ regulate (production)/ update information, offer (more) affordable opportunities for/ assist in/ avoid (problems in),* etc.

The conclusions of the study reveal that/ will help illuminate/ explain ...

We have succeeded in showing that ... .

Our results highlight the potential of the technique/ could lead to/ can be directly applied to the process of ... .

Further investigation will stimulate others to come closer to an understanding of …/ may shed light on ... .

This theory can yield useful predictions about …/ more definitive results.

Proposals for further research: *to await/ merit/ deserve/ warrant investigation; (to provide) impetus, assist in/ encourage/ inspire/ prompt a search, stress/ emphasize the importance, (to acquire/ gain) competence/ confidence (to proceed)/ knowledge/ experience (required to produce P), (to apply/ rely on/ use) logic/ intuition (in studying P), (reach) understanding/ comprehension, etc.*

serious problems/ grave (unsolved) questions (still) remain.

This (aspect) … awaits formalization/ demands closer examination/ deserves further investigation/ presupposes deep study of ... .

Our awareness that we need some more background for … increases.

We need to acquire/ gain competence in this field to proceed.

Concluding remarks/ summary: *to conclude, close, round off; summary/ ize; agree, believe, convince, maintain, recognize, think, trust; (to rest) heavily (on), (fit) neatly (in a category), deeply (embedded in), justly considered; secondary (effect/ process/ important borderline/ marginal (case), peripheral (phenomenon); (results) obtained, (methods) used, etc.*

In conclusion, it may be said that … .

To conclude, this paper has explored … .

Finally, we turn to …/ I want to note that … .

For completeness, we show/ I should add that … .

As exemplified by our study of … ,

Our conclusions focus on aspects such as the fact that … .

To this end, we summarize our main principles.

To summarize/ In summary/ To sum up

The major points covered by this paper may be summarized as follows … .

Our exploration of … has brought the following points to the foreground.

Now we can conclude that … .

SAMPLE CONCLUSION

Review of Experimental Concepts for Studying the Quantum Vacuum Field

E.W. Davis, V.L. Teofilo, B. Haisch, H.E. Puthoff,
L.J. Nickisch, A. Rueda, and D. C. Cole

CONCLUSION

We reviewed the physical nature of the quantum vacuum field, and **described** its spectral **characteristics** and latent energy content. **We are interested in concepts that provide an experimental framework for exploring the possibility and limitations of** accessing energy from the space vacuum environment. **The theoretical approaches guiding this experimental investigation are based on** the QED and SED models of the ZPF. **The purpose of our investigation is to explore the question** of whether the quantum vacuum field contains useful energy that can be exploited for space power and propulsion applications under the action of a catalyst, or cavity structure, so that energy conservation is not violated. **We identified** six **experiments that have the potential to** extract useful energy from the vacuum. **One of these**, Forward's Vacuum-Fluctuation Battery, **was shown to be** unsuitable for completing an engine cycle for pumping energy from the vacuum. **The efficacy of** the Mead and Nachamkin patent device **has not yet been evaluated** in the lab. However, four **additional experimental concepts are potentially exploitable** and **we have selected those to pursue in a carefully guided theoretical and laboratory research program. The estimated power output** from three of these concepts **could** under optimum conditions **range from** Watts **to** kilowatts. But **it should be stressed that** there potentially is a real theoretical and experimental challenge in modeling and predicting noise sources, edge and surface effects, etc. within the different experimental approaches, so that experimental results are unambiguously interpretable. If successful,

however, **it is anticipated that these experiments would lead to** a revolution in the way we generate electrical power for commercial and space applications.

http://www.calphysics.org/articles/Davis_STAIF06.pdf

EXERCISES

7. Fill in the blanks with the following words: *study, results, behavior, approach, concluded, experimental.*

1. The reactions were concluded to be similar in their _____. 2. It can thus be _____ that the barriers for the current in the film structure do not change. 3. From these _____ it is concluded that the change in the spectrum depends on the thermal treatment of the samples. 4. The model is stated to provide a good fit to the _____ data. 5. The results of the _____ suggest that the films should be used as the sensitive elements. 6. This _____ is applicable to pure samples only.

TASK 10. Study the sections II-V given above, paying close attention to the reference materials the sections contain, as well as to the grammar and vocabulary. Use the recommendations and materials given in the paper of your own.

ACKNOWLEDGEMENTS

DESRIPTION AND DEFINITIONS

Acknowledgements is an important part where you give credit to those who have worked with you or financed your research. These should be clear and any help of academic, scientific or technical nature should be acknowledged. But if the acknowledgement is overdone there is a danger that the reader will wonder what contribution the author made to the paper.

Common mistakes

1. Using flippant wording. It is possible to sound patronizing or silly.

2. Not including (1) people's first names or initials, (2) their department and institution.

Wrong: I would particularly like to thank Dr. Stevens for giving me samples of … .

Corrected: I would particularly like to thank Dr. A.J. Stevens, Department of Evolutionary Biology, University of Middletown, for giving me samples of … .

VOCABULARY: WORDS AND PHRASES

To acknowledge smb's support/ assistance/ contribution (to the revision of one's article), be grateful/ indebted (to smb/ colleagues for comments on/ discussing one's article/ objections), to appreciate (deeply/ greatly/ sincerely) smb's help; etc.

Thanks to/ I thank sincerely X … for help/ for helpful comments and discussions.

I wish/ should like to thank X … for criticisms/ discussions/ comments/ objections.

I thank the following … for their criticisms on various versions of this paper.

Numerous contributions of X to the preparation of this article … are greatly appreciated.

I would especially like to thank X … for her useful observations on … .

The author … is indebted to X for various helpful comments/ (gratefully) acknowledges the contribution of X to the revision of this paper.

Finally, I thank the anonymous reviewers for comments on the penultimate draft of this paper.

Two anonymous reviewers raised many incisive objections, for which I am grateful/ to which I have done my best to respond.

If any imperfections remain … I am entirely to blame/ the fault is mine.

TASK 11. Study the Acknowledgements section, paying attention to the recommendations given. Take these into consideration while writing this section of your paper. Try to avoid the common mistakes mentioned.

TASK 12. Read the sample acknowledgements given below, paying attention to the phrases in the bold type and to different ways of expressing acknowledgements.

SAMPLE ACKNOWLEDGEMENTS

The authors thank the Engineering and Physical Sciences Research Council for their financial support during this work. *[S.W. Alexander et al./ Microprocessors and Microsystems 31* (*2007*), *p. 93.]*

The author sincerely thanks the IEEE* 1451 working groups **for the use of the materials in this paper**. Through its program in "Sensors, Interfaces, & Networks for Metrology & Manufacturing", the Manufacturing Engineering **Laboratory** of the National Institute of Standards and Technology **has contributed to the development and demonstration** of the IEEE 1451 standards. *[Kang Lee, IEEE 1451: A Standard in Support of Smart Transducer*

Networking, Proceedings of the IEEE Instrumentation and Measurements Technology Conference, Baltimore, MD USA, May 1–4, 2000.]

*IEEE abbrev The Institute of Electrical and Electronics Engineers, USA

We thank Kevin Cutress, **a graduate student at the University of** New Orleans, **for helpful questions and suggestions that improved the clarity of this article**. *[Golden G. Richard III, Mukesh Singhai, Complete Process Recovery: Using Vector Time to Handle Multiple Failures in Distributed Systems, IEEE Concurrency April-June 1997, p. 58.]*

This work was partially supported by the Commission of the European Communities, Project ITDC-207 AND 9124 (Shared Memory on Distributed Architectures), and the German-Brazilian Cooperative Programme in Informatics, Project No. 523112/94-7 (Parallel and Flexible Environmental Program in Informatics). *[Jorg Cordsten et al., Vote for Peace: Implementation and Performance of a Parallel Operating System, IEEE Concurrency April-June 1997, p. 26.]*

The authors would like to acknowledge the financial support given by the British Council's Sino-British Friendship Scholarship Scheme and the Lanner Group **in respect of this work**. *[Stewart Robinson at al., Proceedings of the 1998 Winter Simulation Conference, D.J. Medeiros, E.F. Watson, J.S. Carson and M.S. Manivannan, eds., p. 1544.]*

The authors are grateful to Dr. A. Nirmalathas, **Dr.** R. Lauder, **and Dr.** Cahil **for technical discussions and assistance**. *[Gupta et al.: Noise Characterization of a Regeneratively Mode-Locked Fiber Ring Laser, IEEE Journal of Quantum Electronics, Vol.36 No.1, January 2000, p. 70.]*

The authors thank the operational **teams of** ETH Zurich's cleanroom facilities (FIRST and CLA labs) and EMEZ **for support**. **We thank Prof.** Victor Bright **and Prof.** Steven George, **both University of** Colorado at Boulder, **for many helpful discussions and for supporting the project with** ALD aluminia substrates. **Support of the** nanotransducers **research program by** ETH Zurich (TH 18/03-1) **and by** Swiss National Science Foundation (20021-108059/1) **is gratefully acknowledged**. *[C. Hierold et al. / Sensors and Actuators A 136 (2007), p. 58.]*

NOTE: Financial support provided is included in the Acknowledgements section or otherwise given as a footnote on the front page, depending on the edition requirements.

EXERCISES

8. Fill in the blanks with the following words: *supported, project, in part, acknowledge, stage, initial.*

1. The work is supported _____ by a grant from NSF* (award # 10-01234). 2. The research described in this article was _____ by the RFBR** grant. 3. We thank Prof. Nickolai A. Novikov and anonymous referees for commenting on the _____ version of this paper. 4. The authors wish to thank Dr. K.N. Brown for useful discussion at an early _____ of this work and the reviewers for helpful comments. 5. I would like to thank Prof. Alexander D. Krylov for insightful discussions of this _____ . 6. The authors gratefully _____ discussions with Prof. Steven Smith.

*NSF abbrev National Scientific Foundation (USA)

**RFBR abbrev Russian Foundation for Basic Research РФФИ сокр. от Российский фонд фундаментальных исследований

9. Complete the following sentences:

1. I would like to thank Prof. Alexander Krylov for _____ .2. The project is partially supported by _____ . 3. This research was performed during our internship at the _____ and the authors are indebted for this. 4. Our research was stimulated by valuable _____ with colleagues from ____. 5. The authors are grateful to ____ who placed his software at our disposal. 6. I would like to thank my adviser Dr._____ for _____.

TASK 13. Write an Acknowledgements section which could be included in your paper.

TASK 14. Read the References section and compare the general requirements set for references in International and Russian scientific publications.

REFERENCES

List of references and end of paper

The reference section contains a list of all the references cited in the text. References should be arranged in alphabetical order (according to the name of the first author). Each reference to an article should contain the following:

1. Name (or names) of author(s), (each) followed by initials.
2. Year of publication in parenthesis.
3. Title of article.

4. Title of journal, either in full or abbreviated according to the World List of Scientific Periodicals.

5. Volume of journal, underlined.

6. Number of first and last pages of articles.

Each **reference** to an article which is **published in** a book or **Conference Proceedings should also contain the title of the book and its editor**. For example:

Chalmers, E.E. (2004). Advantages and disadvantages of nomadism with particular reference to the Republic of Sudan. *In: Beef Cattle Production in Developing Countries (ed. Smith, A.J.),* pp. 388–397. Centre for Tropical Veterinary Medicine, Edinburgh.

http://en.wikipedia.org/wiki/Scientific_writing#The_layout_of_a_scientific_paper

NOTE: Your paper might include **an appendix (plural appendices).** Appendices are placed either before or after the References. This section is additional and contains more detailed information which is not included in the paper itself. This information might not be essential for presenting your findings/ results, but should be relevant to the paper. Appendices might include tables/ charts/ figures, etc., as well as lengthy derivations of formulas and computer programs. Authors are expected to refer to the appendices included within their papers.

AUTHOR BIOGRAPHY

DESCRIPTION AND DEFINITIONS

Many editions require that the paper be accompanied by the author biography. Though the content of biographies may slightly differ, it is practically standard, typically describing in brief the present position/ status of the author, education (often in reverse chronological order), career growth, academic awards, and research interests. In some journals and conference proceedings, you may find biographies including contact information as well. Biographies are always written in the third person. The author's name is printed in bold.

TASK 15. Read the sample biographies given below, paying attention to their structure, content, and words and phrases in the bold type.

SAMPLE BIOGRAPHIES

S.W. Alexander received a B. Eng. (Hons) **degree in** Aeronautical Engineering **from the University of** Glasgow, Scotland in 1998 and an MSc. in I.T. Systems from Strathclyde University in 2001. **He is currently studying for an Engineering Doctorate in** System Level Integration through the Institute for System Level Integration, Scotland. **His research interests include** efficient algorithms for DSP*, FPGA** design and EDA*** tool development. *[S.W. Alexander et al./ Microprocessors and Microsystems 31 (2007), p. 92.]*

***** DSP abbrev Digital Signal Processor

****** FPGA abbrev Field Programmable Gate Array

*** EDA abbrev Electronic Design Automation

Christoph Stampfer has studied technical physics and electrical engineering at TU Vienna, Austria where he **received the Dipl. Ing. degree and completed his BSc in** Applied Physics with Computing **at the** Napier **University** (Edinburgh, GB). **Mr. Stampfer is currently a PhD student** at the chair of Micro and Nanosystems at the Swiss Federal Institute of Technology Zurich (ETH), Switzerland. **His current research interests include** applications of carbon nanotube based NEMS, electromechanical properties of singe-walled carbon nanotubes and ballistic electron transport in open quantum billiards. *[C. Hierold et al./ Sensors and Actuators A 136 (2007), 61.]*

Eugen Pfann received the Dipl. Ing. degree in Electrical Engineering **from the** Vienna **University of** Technology, Austria in 1994. In 2003 **he received a PhD degree** from the University of Strathclyde for his work on Sigma Delta adaptive LMS filters. In 2002 **he joined the University of** Strathclyde **as a research fellow where he became a lecturer** in 2004. **His current research interests are in** MBWA comm. Systems, sensor networks, speckled computing and Sigma Delta DSP techniques. *[S.W. Alexander et al./ Microprocessors and Microsystems 31 (2007), p. 92.]*

VOCABULARY NOTES

Degrees

Degree (in) *n.* (a course of study at a university, or a qualification you get after completing the course) степень, диплом (о высшем образовании)

Academic degree учёная степень

Hons abbrev honours degree степень бакалавра с отличием, диплом с отличием

BSc (Br E)/ **BS** (Am E) abbrev Bachelor of Science degree степень бакалавра естественных наук

B. Eng./ BEng abbrev Bachelor of Engineering degree степень бакалавра технических наук

Dipl. Ing. (German) person with a degree in engineering дипломированный инженер

MSc (Br E)/ **MS** (Am E) abbrev Master of Science degree степень магистра естественных наук

Cand. Sc. (Russia) abbrev Candidate of Science degree степень кандидата наук; Cand.Sc. (Eng)/ (Tech) Candidate of Science in Engineering/ Technology кандидат технических наук

D.Sc. abbrev Doctor of Science degree степень доктора наук; D.Sc.(Eng.)/ (Tech.) Doctor of Science in Engineering/ Technology (Russia) доктор технических наук

PhD abbrev Doctor of Philosophy degree степень доктора философии

Award/ confer a degree присуждать степень

Earn/ receive a degree (from a university) получить степень

Titles

Prof. abbrev Professor: used in writing before the name of a professor: *Please send all your remarks to Prof. Gibson.*

Dr (Br E)/ **Dr.** (Am E) abbrev Doctor: used in writing before the name of a PhD holder: *The authors are grateful to Dr. Gibson for stimulating discussions of the research project.*

NOTE: If your research adviser is Candidate of Science, you should use Dr./ Dr before his/ her name. If your adviser is Doctor of Science, an abbreviated form Prof. is used in writing before his/ her name.

EXERCISES

10. Fill in the blanks with the following words: 1) *research, member, include, has, graduate, Department.*

Raul Bhoedjang is a _____ student in the Computer Systems Group at Vrije Universiteit's _____ of Computer Science. His _____ interests _____ runtime support for parallel programming and high-speed networks. He _____ an MSc in computer science from the Vrije Universiteit. He is a _____ of the ACM. Contact him at the Dept. of Mathematics and Computer

Science, Vrije Univ., De Boelelaan 1081a, 1081 HV Amsterdam, The Netherlands; raoul@ cs.vu.nl; http://www.cs.vu.nl/~raoul/.

2) *PhD, earned, researcher, science, IEEE.*

Koen Langendoen is a postdoctoral _____ in the Mathematics and Computer Science Department of the Vrije Universiteit. His research interests include runtime systems, high-speed networks, and functional programming. He _____ an MSc in computer _____ from the Vrije Universiteit and a _____ in computer science from the Universiteit van Amsterdam. He is a member of the _____ . Contact him at the Dept. of Mathematics and Computer Science, Vrije Univ., De Boelelaan 1081a, 1081 HV Amsterdam, The Netherlands; koen@cs.vu.nl; http://www.cs.vu.nl/~koen/.

[Based on Koen Langendoen, Raoul Bhoedjang, and Henri Bai, Models for Asynchronous Message Handling, IEEE Concurrency, April-June 1997, p. 38.]

11. Fill in the blanks with the prepositions *in, for, from, of, to, with.*

Bill Bigge was born _____ Somerset, England, UK _____ 1973. He gained his degree _____ Fine Art _____ the Norwich School of Art and Design and, following a long period _____ working _____ the arts, completed an M. Sc. _____ Evolutionary and Adaptive Systems at the University _____ Sussex. He is now in the final stages _____ a D. Phil. _____ Computer Science and Artificial Intelligence, also _____ Sussex.

His main research interests are _____ the development _____ robotic systems capable _____ adaptive, dynamic locomotion, and the design _____ functional modular parts _____ developing robotic systems. He is also involved _____ a variety _____ projects _____ promote public engagement with, and understanding of science.

[Based on B.Bigge, I.R. Harvey/ Robotics and Autonomous Systems 55 (2007), p. 734.]

TASK 16. Write your biography to accompany your paper with in accordance with the above samples.

TASK 17. Write a short version of a full paper (extended abstract), containing all the compositional parts: Title (with the author's name and affiliation included), Abstract, Introduction, Materials and Methods, Results, Discussion, Conclusion, Acknowledgements, References, Biography, and Appendices, if any. Your shortened version of the full paper should include no less than 2–3 pages (A 4 paper format) of type-written text. Submit the paper for review (peer review) to your classmate/ fellow student majoring in the same/ similar research field (see Section 5, Task 5).

SECTION 5

WRITING A SUMMARY

DESRIPTION AND DEFINITIONS

There are several terms having similar meanings but used somewhat differently. These terms are **abstract, synopsis or précis, and summary**. In this section we will focus on writing synopses and summaries.

Abstract

From the abstract, readers must be able to decide whether the information provided in the paper is of particular interest to them and whether they should read further. **An abstract contains only very brief highlights and the main conclusions.** All this must be done in as few words as possible; ideally an abstract will be about **125** words long and never more than **250** words.

Synopsis (Précis)

A summary of a passage from a book, report, newspaper article, etc., which conveys the main idea of the original is called synopsis. It is a full story in a capsule and is difficult to write! The writer should be precise, accurate, definite, exact, brief and to the point. Synopsis writing is of great importance to any student since it trains them to understand the meaning of what they read, to think clearly, to construct their writing in an orderly and logical way.

Summary

The summary contains a condensed version of the full paper in about 500 to 1000 words. The synopsis and the summary have much in common because both convey the main idea of a passage, an article, etc. However, there are certain points of difference between them.

These differences seem to be the following:

- The synopsis is a close summary of a paragraph in the proportion 1 to 3, while the length of a summary varies. The normal proportion of a summary, however, is about 1 to 10 of the original.
- Since the summary requires a greater degree of generalization, the writer should use his/her own words.

The summary must have an introduction which clearly states the title, the author's name, the source from which the text is taken and the subject the summary is concerned with.

There are three main kinds of summary: topical, informative or critical, and executive. A **topical summary,** as its name implies, simply describes the topics covered in the book or paper without attempting to draw inferences. An **informative (critical) summary** conveys the main idea, the most important features, conclusions, and possibly gives some critical or evaluative comments and personal judgment. An **executive summary** which is used in a business context is an analytical summary of the purpose of the report, its main findings and conclusions, and the author's recommendations. It can also present detailed information on aspects of particular concern to senior executives, and may often discuss financial implications. It usually has two or more paragraphs.

TASK 1. Read the Description and Definitions section and answer the following questions:

1. What is the function of an abstract?
2. What is a synopsis?
3. What is the difference between a synopsis and a summary?
4. What information does an introduction to a summary contain?
5. What are the main kinds of summary?
6. What is the difference between a topical and informative (critical) summary?
7. What is an executive summary?
8. What is an approximate length of a summary of a full paper?

TASK 2. Study the recommendations for summary writers given in the text below. Focus on connectives and guide words, as well as on phrases typical of each compositional part of the summary.

Writing Style and Techniques

The rules for brevity, clarity, and directness apply here. There are a few writing techniques that will enable you to convey information both quickly and efficiently. Three factors affect the whole document: the tone you set, the writing style you adopt, and the arrangement of information on the page.

Tone

Whether your tone should be formal or informal will depend on the situation and your familiarity with the reader. Note, however, that a formal tone is neither stiff nor pompous; there is no room for writing that makes readers feel uncomfortable because they are not as knowledgeable as you are.

Style

Style is affected by the complexity of the subject you are describing, and the technical level of the reader. Consequently you need to "tailor" your writing style to suit each situation, following these guidelines:

1. When presenting low-complexity background information, and descriptions of nontechnical and easy-to-understand processes, write in an easygoing style that tells readers they are encountering information that does not require total concentration. Use slightly longer paragraphs and sentences, and insert a few adjectives and adverbs to color the descriptions and make them more interesting.

2. For important or complex data, use short paragraphs and sentences. Present one item of information at a time. Use simple words. The more forceful style will warn readers that the information demands their full concentration.

3. When describing a step-by-step process, start with a narrative-type opening paragraph that introduces the topic and presents any information that the readers should know or would find interesting. Then follow it with a series of subparagraphs, each describing a separate step, that

– develop only one item or aspect of the process,

– are short, and

– are parallel in construction.

The role of paragraphs is complex. It must contribute to the whole document, yet it must not be dominant (except when called on to emphasize a specific point). And it should convey only one idea, although made up of several sentences, each containing a separate thought. Good paragraph writing depends on these elements: unity, coherence and adequate development. **We recommend that you try to limit paragraph length to no more than 10 printed lines.** You can adjust paragraph length to suit the complexity of the topic and the technical level of the reader. Generally, complex topics demand short paragraphs containing small portions of information, while general topics can be covered in longer paragraphs. However, even a complex paragraph can be covered in longer paragraphs for readers who are technically able to deal with the topic.

Sentences

Although sentences normally form an integral part of a larger unit – the paragraph – they still must be able to stand alone. While helping to develop the whole paragraph, each has to carry a separate thought. In doing so each plays an important part in placing emphasis - in stressing points that are important and playing down those that are not. Try writing short, simple,

uncomplicated sentences, and then later link those that seem to belong together. By arranging a sentence effectively you can attach importance to the whole sentence, to a clause or phrase, or even to a single word. Too many sentences all the same length imply that the information is dull. You can give a sentence more emphasis than sentences that precede and follow it by manipulating its length or by stressing or repeating certain words. Where we place individual words in a sentence has a direct bearing on their emphasis. Readers automatically tend to place emphasis on the first and last words in a sentence. If we place unimportant words in either of these impact-bearing positions, they can rob a sentence of its emphasis:

Emphasis misplaced	*Such matters as* equipment calibration will be handled by the standards laboratory *however*.
Emphasis restored	Equipment calibration, however, will be handled by the standards laboratory.

The verbs we use have a powerful influence on emphasis. Strong verbs attract the reader's attention, whereas weak verbs tend to divert it. Verbs in the active voice are strong because they tell *who did what.* Verbs in the passive voice are weak because they merely pass along information; they describe *what was done by whom*. **The passive voice is less preferred in technical writing. We recommend you should use the active voice in your technical writing.** The sentences below are written using both active and passive voice. Note that the versions written in the active voice are consistently shorter and more direct. **Compare:**

Elapsed time is indicated by a pointer./ A pointer indicates elapsed time.

It is suggested that meter readings be recorded hourly./ We suggest that you record meter readings hourly.

There are occasions when you will have to use the passive voice because you are reporting an event without knowing who took the action, or prefer not to name a person. Unfortunately, many scientists and engineers still write in the passive voice. Perhaps with the passage of time this outdated usage will disappear. However, in some technical disciplines it's more common to write in the passive voice because the identity of the "doer" is often concealed.

Words

The right words in the right place at the right moment can greatly influence your readers. A heavy ponderous word can slow them down; a complex word they do not recognize will annoy them; and a weak or vague

word may mislead them. But **the right word - short, clear, specific, and necessary - will help them understand your message quickly and easily**.

Words should convey images. We have many strong descriptive words in our individual vocabularies, but most of the time we use the same old routine words. We write "put" when we would do better to write "insert", "position", "drop" or "slide". **Whenever possible, insert specific words rather than generalizations.** For example, instead of "The project will *take a long time*." You could write "The project will *last four months* or will *require 300 work hours."*

Long words create a barrier between writer and reader. Some writers use big words to hide their lack of knowledge or because they think it makes them sound important, others because they start writing without first defining clearly what they want to say. There are many long scientific words that we have to use in technical writing; we should surround them with short words whenever possible so our writing will not become ponderous and overly complex.

Sentences and paragraphs in summaries are to be connected logically and coherently. **The use of special words called connectives and guide words is typical of English technical writing.** The writer can use the following words and expressions:

- **to start or sum up a writing:** first, at first, first of all, in the first place, to begin with; second, secondly; third, thirdly, etc.; next, in the next place, then, finally, to sum up, last, lastly, at last, etc.;
- **to add new facts or ideas**: also, too, as well, besides, in addition, further, furthermore, moreover, likewise, similarly, in a similar way, etc.;
- **to contrast ideas**: but, however, yet, still, nevertheless, on the one hand … on the other hand; otherwise, or else, alternatively, conversely, on the contrary; instead, rather than; at the same time, for all that, after all, etc.;
- **to identify and illustrate**: in other words, for example, for instance, that is, namely, in fact, as a matter of fact, in particular, etc.;
- **to conclude**: hence, therefore, thus, so, as a result, consequently, accordingly, respectively; in summary, in brief, in short, on the whole, in general, etc.

To start a summary the writer can use the following phrases:
The paper (extract from the paper) deals with (the problem of) … .
The article touches upon the issue of … .
The paper is about … .

The extract focuses on the problem of … .
The issue studied in the paper is of great importance … , etc.

In the middle of a summary the following phrases will be appropriate:

It is clear from the paper that … .
It further says that … .
One of the main problems to be singled out is … .
Much attention is also given to … .
Great importance is attached to … .
It should be noted that … .
It must be mentioned that … .
In my opinion … .
According to the text … .
Among other problems the paper raises the problem of **...** , etc.

At the end of a summary the following phrases can be used:

In summary, … .
On the whole we can say that … .
Having analyzed the information it is possible to say that … .
In brief, the following conclusions can be made.
In conclusion, etc.

TASK 3. Read the examples of summaries given below. Pay attention to the concluding paragraph of the informative (critical) summary (summary 3). What recommendations does the writer give? What verb form is used to suggest "a safer choice"?

EXAMPLES*

Topical Summary

Summary 1

Construction of the Minnowin Point Generating Station was initiated in 1994, and first power from the 1340MW plant is scheduled in 2001. A general description of the structures and problems peculiar to the construction of this large development in an arctic climate is presented. The river diversion program, permafrost foundation conditions and major equipments are described. The latter includes the 16 propeller turbines, among the largest yet installed, each rated at 160 000 horsepower.

Summary 2

The book is the first attempt to introduce the concept of Engineering Consultancy into international business practice and to set out its principles using practical examples. This form of activity has proven to be effective in diverse machine manufacturing sectors including the automotive industry, tool making, nuclear power machine manufacturing, oil and gas equipment manufacturing, and special machine manufacturing.

Despite specific aspects of each of these sectors there are some similar tasks that need to be tackled in virtually every case. These tasks include competitiveness of companies, improvement of product quality, launching new products, decreasing production costs and overhead expenses and enhancing the customer role in managing the product lifetime.

The methods and approaches described in this book which are designed to solve these problems have been applied in large and medium-sized companies of different forms of ownership (state, private and combined) involved in small and medium scale batch production dealing with mechanical treatment of various types of products. Production preparation periods and the quality of products are very important for them and transition to production on a commission basis is also studied in the book.

Informative (Critical) Summary

Summary 3

The author has tested a specimen of steel to determine whether a job lot owned by Northern Railways could be used as structural members for a short-span bridge to be built at Peele Bay in the Yukon. The sample proved to be G40.12 structural steel, which is a good steel for general construction but subject to brittle failure at very low temperatures.

Although the steel could be used for the bridge, (we consider) the author considers that there is too narrow a safety margin between the –51ºC temperature at which failure can occur, and the –47ºC minimum temperature occasionally recorded at Peele Bay. A safer choice would be G40.8c structural steel, which has a minimum failure temperature at –62ºC.

*The summaries are abridged. The Introduction section is not included.

(Based on "Technically-Write" by Ron Blicq and Lisa Moretto, Canadian Fifth Edition. Sample Phrases: Митусова О. А., 2003).

TASK 4. Study an example of a topical summary given below. Write a topical summary of a research paper published in conference proceedings or a scientific journal using phrases for each compositional part of the summary. Use connectives and guide words whenever necessary. The

introduction should include the author's/ authors' name(s), and affiliation; the title of the paper being reviewed, the source the paper is taken from: a scientific journal, conference proceedings, etc.

EXAMPLE

Summary 4

The aim of this paper is to discuss such aspects of orbitrap mass spectrometry as rotational and axial motion, modes of detection and some difficulties. Various ways of solving these problems are also suggested.

The first part is devoted to a rotational motion of ions in the trap. The authors set the requirements for ions to take stable trajectories. The main requirement for a stable trajectory is a balance between the centrifugal and centripetal forces acting on an ion. The results of simulations are depicted and described.

In the second part the authors describe an axial motion of ions. This motion consists of oscillation of ions around the z-axis of the trap which are independent of initial ion parameters. The parameters of this motion are given and their influence on the image current to be detected is discussed.

The third part of the paper describes some important aspects of ion current detection. To obtain a mass spectrum from the current, one should detect its image first and then apply the Fourier transform to it. Both positive and negative ion spectra can be obtained by the orbitrap. The authors also describe some examples of such experiments.

An important problem in the detection of a current is adding an RF voltage to the central electrode. This voltage results in the instability of some ions depending on their m/z relation. One of possible ways of solving this problem is to add more RF voltage to increase the axial amplitude of the ions of interest. Some pictures and graphs to illustrate such a way are given in the paper.

NOTE: A scientific article/ paper **critical summary** is also known as an **article review**. The reviewer is expected to describe in brief the investigation made: its novelty, methods applied, results obtained, interpretation of the findings/ results, original contribution to science, the paper merits and demerits, and to conclude with assessing its value.

TASK 5. Read closely your colleague's article/ paper and write its review in accordance with the following plan. You may also use the template given below.

Introduction

- The author's/ authors' name(s) and affiliation; the title of the paper being reviewed;
- The purpose of the paper and the research problem formulated;
- Its importance/ relevance.

Body

- Brief description of results/ findings;
- Strengths and significance of the investigation;
- Weaknesses and limitations.

Conclusion

- Summarizing the discussion;
- Making the final conclusion about the novelty and importance of the research contribution;
- Recommending the paper for presentation at a conference or publication in one of the NSTU editions in case it corresponds to the standards set for a research article/ paper. If the paper does not correspond to these standards, recommend your colleague (classmate) to improve its quality.

Review*

Author's name and affiliation, (e. g. Vladimir Kovalenko, Novosibirsk State Technical University), the paper title (e. g. Application of …).

The paper (title) addresses a very acute problem of … . The author offers an original scheme of … .

The calculation results presented in this paper demonstrate the advantages of the proposed scheme over ... . The simulation results obtained by the author seem promising, but real-life testing of ... is required. Technical and economic assessment should also be made.

The author investigated a very acute and complicated problem of ... . He proposed an original scheme … to improve ... but experimental confirmation of the idea has yet to be achieved. With the real-life testing and experimental confirmation supplied, the paper might be recommended for presentation at the International Conference on … to be held in Russia next year.

Name of the review writer/ reviewer (e. g. Sergei Korotkov).

*The template is based on the review of the paper (author P. Morozov) written by O.Volkova. Both the paper (the English language version) and the review were written as examples within the course of English for doctoral students the authors took in NSTU graduate school (English class 2008–2009). The paper is based on the research P. Morozov was involved with.

SECTION 6

GIVING A PAPER AT AN INTERNATIONAL CONFERENCE

ORAL PRESENTATION

DESCRIPTION AND DEFINITIONS

Oral Presentation Advice*

Mark D. Hill
Computer Sciences Department
University of Wisconsin-Madison
April 1992; Revised January 1997

Things to Think About

1. Oral Communication is different from written communication

Listeners have one chance to hear your talk and can't "re-read" when they get confused. In many situations, they have or will hear several talks on the same day. Being clear is particularly important if the audience can't ask questions during the talk. There are two well-known ways to communicate your points effectively. The first is to K.I.S.S. (keep it simple stupid). Focus on getting one to three key points across. Think about how much you remember from a talk last week. Second, repeat key insights: tell them what you're going to tell them (Forecast), and tell them what you told them (Summary).

2. Think about your audience

Most audiences should be addressed in layers: some are experts in your sub-area, some are experts in the general area, and others know little or nothing. Who is most important to you? Can you still leave others with something? For example, pitch** the body*** to experts, but make the forecast and summary accessible to all.

3. Think about your rhetorical goals

For conference talks, for example, I recommend two rhetorical goals: leave your audience with a clear picture of the gist of your contribution, and make them want to read your paper. Your presentation should not replace your paper, but rather whet the audience appetite for it. Thus, it is

commonly useful to allude to information in the paper that can't be covered adequately in the presentation.

A Generic Conference Talk Outline

This conference talk outline is a starting point, not a rigid template. Most good speakers average two minutes per slide (not counting title and outline slides), and thus use about a dozen slides for a twenty minute presentation.

- **Title/ author/ affiliation** (1 slide)
- **Forecast** (1 slide)
  Give gist of problem attacked and insight found (What is the one idea you want people to leave with? This is the "abstract" of an oral presentation.)
- **Outline** (1 slide)
  Give talk structure. Some speakers prefer to put this at the bottom of their title slide. (Audiences like predictability.)
- **Background**
  - **Motivation and Problem Statement** (1–2 slides)
    (Why should anyone care? Most researchers overestimate how much the audience knows about the problem they are attacking.)
  - **Related Work** (0–1 slide)
    Cover superficially or omit; refer people to your paper.
  - **Methods** (1 slide)
    Cover quickly in short talks; refer people to your paper.
- **Results** (4-6 slides)
  Present key results and key insights. This is main body of the talk. Its internal structure varies greatly as a function of the researcher's contribution. (Do not superficially cover all results; **cover key result well**. Do not just present numbers; interpret them to give insights. Do not put up large tables of numbers.)
- **Summary** (1 slide)
- **Future Work** (0–1 slide)
  Optionally give problems this research opens up.
- **Backup Slides** (0–3 slides)
  Optionally have a few slides ready (not counted in your talk total) to answer expected questions. (Likely question areas: ideas glossed over, shortcomings of methods or results, and future work.)

Acknowledgments

Thanks to Jim Goodman, Jim Larus, and David Patterson for their useful comments. The current on-line version of this document appears at URL

http://www.cs.wisc.edu/~markhill/conference-talk.htm

*The paper is abridged

**Pitch *v* to make a speech, explanation, job etc. suitable for people who are a particular age, level of ability etc.

***Body *n* main body of the paper

TASK 1. Read the abridged version of the paper given above. Answer the following questions:

1. What is "Forecast"? When are you recommended to give a summary of your talk?
2. Do you agree with the statement that your research subarea might not be understandable to everyone present? Would you follow the recommendation to address the audience "in layers"?
3. Should you motivate the audience to read your paper by giving a clear gist* of the contribution and referring to the information presented in the written version of the paper?
4. How many slides is an author recommended to use when giving a twenty minute presentation? Is this advice based on the skills gained by experienced speakers?
5. What information should the title slide contain?
6. What are the likely question areas? Should you have slides ready to answer the expected questions?

*****Gist суть, сущность, истинный смысл; главный пункт

TASK 2. Write down an outline of your paper to be given at an international conference and accompany it by notes. An alternative proposed is to write down a complete text of the talk. Take into account the recommendations given in the text above. Below you are also given phrases pertaining to each compositional part of the talk, which could be helpful to you. Have your slides ready to complete preparing the presentation.

I. Introduction

Opening salutation

Mr. Chairman, Dear colleagues, Ladies and Gentlemen,

Stating the problem and its importance

In my paper I am concerned with ... . As is known, in recent years a considerable number of works have appeared on the problems of ... . However, no detailed information is so far available on the phenomenon of ... . It is known that in the last few years there have been many studies of the phenomenon of ... . Research into the properties of … is of great importance, because it may contribute to our understanding of the processes occurring in … . We have performed a series of experiments in order to determine … . The results we have obtained from the experiments appear to be quite different from those reported in the literature. Now I will present these results … .

Outlining the structure of the talk

First, I will describe … . Then I will be concerned with … . Further I will analyze … . Finally, the results of … will be presented.

II. Main body of the paper

Making the composition of the text distinct

First/ then … .
Now I'll consider briefly … .
At this point I'll speak in more detail about … .
Let me now make some comments on … .
Let us turn (back) to … .

Specifying and clearing up the points being discussed

From this it follows that … .
Consequently, it is possible that … .
For this reason, it is feasible that … .

Drawing the attention of the audience to the most important points

It is essential that … .
It is particularly important/ interesting that … .
It is of great interest/ significance/ importance that … .

It should be noted/ noticed that … .
It is interesting/ important to note/ recognize that … .
It should be stressed/ emphasized/ underlined that … .
Of special interest/ importance is the fact that … .

III. Conclusion

Concluding the paper

From this it can be concluded that … .
In conclusion, we will say that … .
To conclude, the most effective method of investigating this problem is … .
Summarizing/ To summarize what I have said … .
Summing up/ To sum up, it is essential that … .

(Based on American English for Everyday Use, 1996).

TASK 3. Read the passage given below and answer the following questions.

1. Have you used the PowerPoint presentation software? If yes, do you find it helpful and easy to use?

2. Are you going to give a PowerPoint presentation at an international conference? If yes, could you describe the advantages of the PowerPoint presentation?

PowerPoint presentations consist of a number of individual pages or "slides". The "slide" analogy is a reference to the slide projector, a device that has become obsolete due to the use of PowerPoint and other presentation software. Slides may contain text, graphics, movies, and other objects, which may be arranged freely on the slide. PowerPoint, however, facilitates the use of a consistent style in a presentation using a template or "Slide Master".

The presentation can be printed, displayed live on a computer, or navigated through at the command of the presenter. For larger audiences the computer display is often projected using a video projector.

http://en.wikipedia.org/wiki/Microsoft_PowerPoint

PARTICIPATING IN A POSTER SESSION

POSTER PRESENTATIONS

DESCRIPTION AND DEFINITIONS

The purpose of poster presentations is not to have boards upon boards of information. Better to hand out a report in that case. If you are presenting your poster at a conference or convention, you would have limited space. The space you are allowed will determine the content of the poster. Find out how much space you are allowed!

Is there a standard format?

Yes, there is! As with an oral presentation, there is normally:

- a **Title** page, telling others the title of the project, the people involved in the work and their affiliation.
- a **Summary** of the project stating what you have set out to do, how you have done it, the key findings and the main results.
- an **Introduction** that should include clear statements about the problem that you are trying to solve, the characteristics that you are trying to discover or the proofs that you are trying to establish. These should then lead to declarations of project aims and objectives.
- a **Theory** or **Methodology** section that explains the basis of the technique that you are using or the procedure that you have adopted in your study. You should also state and justify any assumptions, so that your results could be viewed in the proper context.
- a **Results** section that you use to show illustrative examples of the main results of the work..
- a **Conclusion** section, listing the main findings of your investigation, and
- a **Further Work** section that should contain your recommendations and thoughts about how the work could be progressed; other tests that could be applied, etc.

http://lorien.ncl.ac.uk/ming/dept/Tips/present/posters.htm

TASK 4. Read the Description and Definitions section and answer the following questions:

1. Do you have an experience in giving poster presentations?

2. What are the peculiarities of a poster presentation?
3. Is the structure of a poster paper different from this of an oral presentation?
4. What advantages does a poster presentation offer?

CONVERSATION

Discuss the following topics:

Participation in international conferences: pros and cons

Helpful vocabulary: to acquire direct experience (in), to communicate with researchers from foreign universities, to improve one's English, to master skills in scientific writing; to make the communication difficult, to be more adequate for experienced researchers.

Oral vs. poster presentation

Helpful vocabulary: to address a large audience, to attract the audience, time limit, to follow the procedure; less formal, more time for communicating one's ideas; to communicate with researchers investigating the same field.

APPENDIX I

DICTIONARIES AND REFERENCE GUIDES

We would like to present in some detail the dictionaries and reference books which we recommend you to use while writing your papers in English. We provide a brief description and some summary-abstracts/ abstracts of this editions, as well as our comments, so that you could get a better idea of the books and dictionaries we recommend you to use.

ABBYY Lingvo Multilingual Electronic Dictionary

We start with this electronic dictionary (which is rather a collection of dictionaries) because we can't avoid mentioning it. It proved to be the most popular electronic dictionary, and it is being constantly expanded and updated. Essentially, we are interested in the English-Russian/ Russian-English version. It comprises a dictionary of general English (LingvoUniversal), explanatory (defining) dictionaries, and specialized (branch) dictionaries, e.g., LingvoComputer, LingvoScience, LingvoEconomics, etc., to say nothing of reference and teaching materials, including grammar. It is easy to use, saves time, and is actually a helpful guide to scientific reading and writing.

We included this information just in case you had not used this dictionary before enrolling in the graduate program. Have it installed on your computer. It is considerably easier to master reading and writing skills with an electronic dictionary like this.

Рябцева Н.К. Научная речь на английском языке: Новый словарь-справочник активного типа (на английском языке) – М.: Флинта: Наука, 2000. – 600с.

The book consists of the "Guide to Academic Writing" and the "Combinatory Dictionary of Scientific Usage". The aim of the Guide "is to promote an active linguistic competence in scientific English and to apply it to generating one's own paper". The "Combinatory Dictionary of Scientific Usage" serves practically the same purpose as a dictionary.

Though at the first sight the Guide seems too complicated, it is easy to use and appears to be almost exhaustive. You are really urged to write and to write in good English. The Guide includes three parts. Part I entitled "Text Organization: The Structure of the article" contains extensive vocabulary as well as speech patterns and phrases pertinent to the corresponding section of the paper you are writing. In addition, it gives

examples of using some Latin expressions and abbreviations, as well as the wording of acknowledgments. Part II concentrates on the use of rhetorical devices and Part III introduces patterns and examples of abstracts, resumes, summaries, reviews, titles, etc.

The Combinatory Dictionary of Scientific Usage should be referred to whenever you are not sure about using a preposition/ noun / verb/ adjective with this or that word. The Dictionary contains 5000 entries, and more than 30,000 expressions, as well as examples of scientific usage. It significantly improves one's writing and helps express one's ideas clearly and precisely. It is an indispensable dictionary to all those who are engaged in scientific writing in English.

Comments: As is seen, you have an excellent Guide to Academic Writing and a Combinatory Dictionary at your disposal. We recommend you to study the structure of the book in detail and address it when you are writing in English. It really "helps one use" the language.

"English for Scientific Purposes" by N.K. Riabtseva is intended, first of all, "for graduate students and scholars in all disciplines **with reading skills in English".** The structure of this reference guide is described in detail in the preface to the book. Read it attentively in case you want to use all the resources provided and address it from time to time. You have reading skills in English and you read a lot of papers on your research field (by the way, the more you read, the better you write, which is a well-established fact). But you are not sure about writing and it is quite understandable—writing requires knowledge, experience, and mastering these productive skills. What is peculiar about this book is that **"it does not "teach" English, but helps one use it".**

(Based on the abstract and preface to the edition).

Владимирская Е.В. и др. Русско-английский словарь и фразеология новых разделов физики полупроводников. СПб.: Наука, 2000. – С. 108.

The study guide is intended for undergraduate and graduate students preparing their publications in English. It includes a Russian-English Dictionary of New Semiconductor Physics Terms (pp. 5-28) and a Reference Guide to Writing (pp. 29-100). Though mostly aimed at students majoring in various areas of physics and electronics, the Guide introduces the structure of a scientific paper and vocabulary typical of many fields of

science and engineering. The role (function) of each compositional part of the scientific paper and the extensive vocabulary are explained satisfactorily, and each unit is accompanied by exercises and keys except for the first unit (abstract) which has a somewhat peculiar format and does not include a vocabulary list and exercises). The explanations are given in Russian, which makes the manual available to students with different levels of language proficiency.

Кузнецов Б.В. Русско-английский словарь научно-технической лексики. М., 1992.

"This Dictionary has no analogue either in Russian or foreign lexicography. It covers a broad range of verbs, adjectives, prepositions, and adverbs as they are used in special fields. A further distinction of the Dictionary is that it widely illustrates the use of everyday language in the scientific and technical context. Collocations take up much space in the Dictionary. The Dictionary offers a wide choice of illustrative examples, both as complete phrases and as verbs patterns. The Dictionary is aimed at translators, engineers as well as undergraduate and graduate students, and teaching staff of technical universities.

(Based on the abstract and the preface to the dictionary).

Comments: We recommend you to consult this dictionary whenever you experience difficulties in finding the proper word combination or when you are not sure about using a verb or preposition with this or that term. The dictionary could help and it helps in most cases. It is really unique. And remember: it is a Russian-English dictionary which could help you find the proper term related to your field of research and the English equivalents of Russian words and word combinations as they are used in scientific literature.

Циммерман М., Веденеева К. Русско-английский научно-технический словарь переводчика. – М., Наука; Нью-Йорк, 1991.

This dictionary covers a wide range of word combinations and expressions as they are used in English-language scientific and technical literature. The user can easily find an equivalent of a Russian-language phrase to be used in the text being written/ translated as all the entries are arranged in strict alphabetical order. Cross-references are also provided thus facilitating the user's search.

Though directly addressed to translators of scientific and technical literature, the dictionary proves invaluable to research scientists publishing their papers and books in international editions.

"When a translator of scientific or technical literature from Russian into English seeks the counterpart of some specialized term he turns to a dictionary or an original source in English. But the terms are not the whole problem. They must be couched in the language of a particular branch of science or technology. A translation should be free of unidiomatic or amateurish passages. "The right word in the right place" is the translators' motto.

The present dictionary is an attempt to supply word combinations and expressions that may be of help in achieving this aim. It is not dictionary of terms or idioms, but a collection of typical examples from scientific and technical sources. The words that make up the combinations are usually common to a number of branches of science and technology. The remaining words of illustrative context are not so important since they are only meant as "fillers" to link the combination elements together. The user's attention should be focused on the words in bold type." **[M.G. Zimmerman, An extract from the preface to the first edition].**

Comments: It is difficult to add anything to the author's words. But what we do want to emphasize is that this unique dictionary will be very helpful to you as a reference guide. Writing papers in English is becoming much easier with a dictionary like this at hand.

APPENDIX II

PUNCTUATION RULES*

Semicolons. Semicolons may take the place of full stops. If two sentences are closely related in subject matter, perhaps by contrast or a common factor, the relationship can be stressed by joining the sentences with a semicolon:

The design of the bridge was superb at the time; today it has to carry too such heavy traffic.

Each 'sentence' remains an accurate, grammatical whole, making sense by itself. However, the link of information (then...now) is strong, and is emphasized by the use of a semicolon instead of a full stop at the end of the first sentence. This use of the semicolon can produce an elegant style; if it is not overused, it can be most effective. Semicolons can also be used to separate sections of information in a list:

The following hazards must be considered:

1. insulation and protection from electric shock;

2. possible fire risks and the location of fire extinguishers;

3. testing of pressurized or other highly stressed components.

Nowadays, these semicolons are often omitted, which is acceptable as long as the individual items in the list are short; if they are more than a line in length, then for clarity the punctuation should be retained.

Colons. Colons are not interchangeable with semicolons. The most common use of a colon is to introduce an example or introduce a quotation. A colon may also introduce a list, as in the following example:

The equipment needed for this test is as follows:

- *oscilloscope*
- *digital voltmeter*
- *signal generator*

A list may sometimes simply be an amplification of the preceding information:

There are three main types of stepping motor: variable reluctance motors, permanent magnet motors and hybrid motors.

Commas. In some ways, commas are a difficult form of punctuation, because while they often follow rules, to a certain extent they are also the result of individual choice, of a feeling for the language.

The most common use of a comma is to separate the main part of a sentence from a subordinate part, either to make the meaning clear or allow the reader to 'take breath' naturally. This is an important aspect of the use of

commas, as the ‘natural pause’ in a long sentence helps the reader to assimilate the information given so far and prepare for what is to come.

When the bridge was first built, it was adequate for traffic requirements.

The subordinate unit may appear neither at the beginning nor at the end of the sentence, but in the middle:

The bridge, originally adequate for traffic requirements, is today the scene of frequent holdups and the cause of long queues.

The ‘comment’ words and phrases are separated from the rest of the sentence by a comma or commas, depending on where the comment is placed in the sentence.

There is, however, a plan to build a second bridge over the river.

Nevertheless, for the time being the problem will remain.

The detour needed, it must be remembered, is lengthy.

Dashes and brackets. Asides, comments or examples may be placed between dashes as an alternative to commas. Dashes tend to be informal in style and should be avoided in technical writing.

Brackets, on the other hand, are ‘heavy’ punctuation. They break up the flow of the reading, and should be used only when the information which they enclose is not an integral part of the sentence. Notes like (see Figure 6.1) perhaps show one of the two most common uses of brackets.

Hyphens. Hyphens are sometimes confused with dashes, but they are shorter and have different uses. They may be used to bring together two words which gain a new meaning from being joined: ‘re-cover’ is different from ‘recover’.

Scientific and technical terms often contain hyphens which reflect two aspects of the meaning.

The insulation is made of glass-reinforced foil-faced mineral wool.

(Based on “Writing for Engineers” by Joan van Emden, 2005).

VOCABULARY NOTES

Bracket(s) *n* обычно *мн.* скобка(и)
Colon *n* двоеточие
Comma *n* запятая
Dash *n* тире
Full stop точка syn: period, full point
Hyphen *n* дефис, соединительная черточка
Semicolon *n* точка с запятой
*For more information about punctuation rules visit our website.

APPENDIX III

WORDS AND EXPRESSIONS OF LOW INFORMATION CONTENT

Words and expressions of low information content (LIC) contribute little or nothing to the facts conveyed by a sentence. **Remove them and the sentence appears clearer and says just as much.** The problem is that practically everyone inserts LIC words into sentences and we become so accustomed to them that we do not notice how they fill up space without adding any information**. Compare:**

- The control is actuated by *means of* No.3 valve. (delete "means of")
- Tests were run for *a period of* three weeks. (delete "a period of")

Examples of LIC words and phrases

The LIC words and phrases in this partial list are followed by an expression in brackets (to illustrate a better way to write the phrase) or by an (X), which means that it should be dropped entirely.
actually (X); in color, in length, in size (X);
a majority of (most); in connection with (about);
a number of (many, several); in fact, in point of fact (X)
as a means of (for, to); in order to (to);
as a result (so); last but not least (X);
as necessary (X); in such a manner as to (to);
at the rate of (at); in the course of (during);
at the same time as (while); in the direction of (toward);
bring to a conclusion (conclude); in the event that (if);
by means of (by); in the form of (as);
by use of (by); in the light of (X);
connected together (connected);
involves the use of (employs; uses);
due to the fact that (because); is a person who (X)
during the course of (while); is designed to be (is);
end result (result); it can be seen that (thus; so);
exhibit a tendency (tend); in the foreseeable future (in future);
for a period of (for);
involves the necessity of (demands; requires);
for the purpose of (for; to); of considerable magnitude (large);
for this reason (because); on account of (because);

in all probability (probably); previous to, prior to (before);
in an area where (where); subsequent to (after);
in an effort to (to); with the aid of (with; assisted by);
in close proximity to (close to; near);
with the result that (so; therefore).

Note: Many of these phrases start and end with such words as:
as, at, for, in, is, it, of, to, and with.

This knowledge can help you identify LIC words and phrases in your writing.

(Based on "Technically-Write" by Ron Blicq and Lisa Moretto, Canadian Fifth Edition) .

ЛИТЕРАТУРА*

1. *Владимирская Е.В. и др.* Русско-английский словарь и фразеология новых разделов физики полупроводников. СПб.: Наука, 2000. – С. 108.

2. *Рябцева Н.К.* Научная речь на английском языке: Новый словарь-справочник активного типа (на английском язык) – М.: Флинта: Наука, 2000. – 600 с.

3. American English for Everyday Use (Курс для продолжающих изучение английского языка). Академический проект, Санкт-Петербург, 1996. – 338 с.

4. Learn to Read Science. Курс английского языка для аспирантов: Учебное пособие / Руков. Н.И. Шахова. – 6-е изд., испр. – М.: Флинта: Наука, 2005. – 360 с.

5. RPon Blicq and Lisa Moretto, Technically-Write, Canadian Fifth Edition.

*Materials taken from websites are referred to as appropriate to the citations.

СЛОВАРИ

1. ABBYY Lingvo 12, Multilingual Electronic Dictionary (English-Russian/ Russian-English version).

2. English-Russian, Russian-English dictionary, “A Wiley-Interscience Publication”, 1984.

3. Macmillan English Dictionary for Advanced Learners, International Student Edition, 2002.

4. *Мюллер В.К.,* Англо-русский словарь, М., Русск. яз.,1989.

5. *Рябцева Н.К.* Научная речь на английском языке: Новый словарь-справочник активного типа (на английском язык) – М.: Флинта: Наука, 2000. – 600с.

LITERARY SOURCES*

1. International Linear Algebra Society, 13th conference, July 18–21, 2006 – Amsterdam

2. Graduate School Inter-University Scientific Conference, Abstracts Booklet, Novosibirsk State Technical University, Novosibirsk, 2000.

*Other sources are referred to as appropriate to the citations.