

Guidelines for writing a paper

I. Publishing a paper

II. Structure of the paper

III. Author declaration

IV. Use of tenses: overview

I. Publishing a paper

After any research has come to an end and all the results have been assessed and evaluated, the author should publish them. What should you do and what can you expect ?

Choose a journal closest to your field, if possible with a high impact rating.

1. Write the paper according to the journal's guidelines.
2. Check all the facts and visual information once again.
3. Send the paper to the chosen journal together with a cover letter.
4. If required, declare that the paper presents new information and that it has not been published elsewhere.
5. Expect confirmation that the paper has been received and will be reviewed.
6. If necessary, be ready to make changes suggested by the referee/reviewer, then send the paper back and hope it will be published soon.

II. Structure of the paper

The most usual parts of a paper in the order they usually appear are as follows. Note that some journals may use different headings.

1. Title

2. Author's name/authors' names and affiliation(s)

3. Abstract and Keywords/Index terms

4. Sections of the paper:

4.1. Introduction (Why did you start?)

4.2. Body/Core of the paper

4.2.1. Materials and Methods/Methods of Approach (What did you do and how?)

4.2.2. Results (What did you find?)

4.2.3. Discussion (What do the results mean, how do they compare with those of other researchers?)

4.2.4. Conclusion(s) (What is your message?)

5. Acknowledgement

6. Nomenclature and Appendices (if necessary)

7. References

Notes:

- The Materials and Methods section and Results can be integrated into one section labelled Experimental or split into more parts with various subtitles; or Results and Discussion can be combined into one section. As usage may vary, follow the practice of the relevant journal.
- The numbering used above does not correspond with the numbering of an authentic paper; it is only intended to refer you to the descriptions given below.

1. Title

The title should attract the attention of peers, i.e. it should clearly state the problem.

It should be short and concise.

It should not be a full sentence, question or negative statement.

It should include some of the keywords.

It should not include contracted forms.

It should not be followed by a full stop.

It should not cumulate too many adjectives.

It should not include equations. Acronyms and abbreviations should be avoided unless generally known and accepted.

All **important words** (nouns, verbs, adjectives, adverbs) are usually **capitalized**.

High-Frequency Loss Calculation in a Smooth Rotor Induction Motor Using FEM

There are, however, journals that use small letters.

Knowledge management to support product development in small and medium-sized enterprises

Both parts of **hyphenated words** are usually **capitalized** (see the example above).

Notes on the use of articles

As in all headlines, articles are less frequent in titles than in the rest of the paper.

- **When generalizing**, i.e. referring to a whole class/category, **the noun** is usually in the **plural form** without the definite article. Less frequently, the singular form with the definite article is used.

*Harmonic Mitigation in AC-DC Converters for Vector Controlled Induction Motor Drives
An Integrating Role for the Computer in Engineering Education*

- In **scientific English**, the article is often left out with **nouns describing activities** even when the **meaning is specific** rather than general (e.g. the noun is followed by an "of" phrase). This is also true about such nouns in the title, especially when they are used at the beginning of the title.

*Investigation of Force Generation in a Permanent Magnet Synchronous Machine
Analysis of Hydrogen Gas Sensing Characteristics Based on a Grey Polynomial
Differential Algorithm*

When they are placed **inside** the title, usage varies.

Mathematical methods for the analysis of color scanning filters

A Man-Portable Vector Sensor for Identification of Unexploded Ordnance

- **With countable nouns** describing a **newly developed device/method** usage varies between the indefinite article and the zero article.

Handheld Microtactile Sensor for Elasticity Measurement

A Hydrogen Sensor Based on Graphitic Carbon

Proposal and Development of Arrayed Sole Sensor for Legged Robot and ...

Design and Simulation of a Tactile Sensor for Soft-Issue Compliance Detection

2. Author's/Authors' names and Affiliation(s)

The word "affiliation" indicates where a person is employed or what institution he/she is a

member of. In some journals, the name is followed by abbreviations of the degrees earned or of membership in learned societies. This practice is, however, less common these days.

names + affiliation(s) (most common)

Y.G. Sandanayake*, C F. Oduoza, D.G. Proverbs

School of Engineering and Built Environment, University of Wolverhampton

names + affiliation(s) + address(es)

Y.G. Sandanayake*, C. F. Oduoza, D.G. Proverbs

School of Engineering and Built Environment, University of Wolverhampton,
Shifnal Road, Priorslee, Telford TF2 9NT, UK

- When there are **more authors** from different institutions, their names and affiliations are usually marked with **index numbers** (¹) in the title. Some journals prefer to give only names in the title and present the affiliations at the bottom of the first page (as a footnote) or at the end of the paper.
 - The name of the **corresponding author** is usually marked with **an asterisk (*)** in the title and his/her contact address is given at the bottom of the first page (as a footnote):
*Corresponding author. E-mail:
- When the address is not given together with the name of the institution, it is included in the contact address.
- As usage may vary, follow the practice of the relevant journal.

3. Abstract and Keywords/Index terms

Abstract

The **Abstract** sells the paper, i.e. it should be written in such a way as to attract the attention of peers.

It is the last and final part to be written (unless it is an extended abstract, sometimes referred to as synopsis, sent to the conference organizers in advance).

It is organized in a similar way as the paper, i.e. it includes the following **parts**:

- **paper objective and background** (based on facts from the Introduction),
- **method and approach** (based on facts from the Materials and Methods section),
- **results** (based on facts from the Results section),
- **conclusion(s)** (based on concluding remarks from the Conclusion).

The **number of words** is usually set by the journal at between **100 and 400**. The most usual number is about 200.

Useful hints for writing the abstract:

- Do not exceed the word limit.
- Do not include references, figures, equations, and details.
- Avoid overusing “we” constructions if possible. Prefer passive, i.e. impersonal, constructions, because the agent of processes and events is usually not known or is not important.

Use of tenses

The **present tense** is the predominantly used tense in the Abstract. For more information see IV. Use of tenses: overview.

Keywords/Index terms

Keywords should be listed **below** the **Abstract**. Their number varies from at least three to about six or seven. They characterize the topic/problem.

4. Sections of the paper

4.1. Introduction

4.2. Body of the paper

4.2.1. Materials and Methods/Methods of Approach

4.2.2. Results

4.2.3. Discussion

4.2.4. Conclusion(s)

Below you will find some basic recommendations for writing the individual sections of the paper. You should, however, **read the journal's guidelines** before you start writing as editors' requirements may vary.

4.1. Introduction

The **introduction**

- helps the reader to decide whether or not he will read the paper,
- informs him/her what the paper deals with and why it was written.

The usual parts are

- **problem background, state of the art,**
- **literature review/summary of previous research,**
- **problem statement, purpose/main objective of the paper,**
- **framework of the paper** (lists the sections of the paper and gives their brief descriptions; not all papers include this part).

In most cases, the **Introduction** section is organized as a whole and is not divided into subsections. The subheadings listed above should only help you organize the information.

Use of tenses

The present and **the present perfect tenses** are the most frequently used tenses in this part of the paper. For more information see IV. Use of tenses: overview.

4.2. Body of the paper

Unlike the Introduction, this section is divided into several separate parts, each with its own heading:

4.2.1. Materials and Methods/Methods of Approach

4.2.2. Results

4.2.3. Discussion

4.2.4. Conclusion(s)

4.2.1. Materials and Methods/Methods of Approach

The **Materials and Methods** section is the descriptive part. It provides details about **what was used** for the research, **what was done** and **how it was done**.

In other words, it describes

- the approach, methodology, procedures, materials, apparatus, experimental design, computation techniques, calculations,

- the way the problem was solved.

Notes:

- Materials and methods should also provide enough details to **enable reproducibility** of the methods and experiments, i.e. make it possible to repeat the experiment (also by other researchers) using the same methods.
- There are two ways of **ordering** the methods/procedures: **by the type of method/procedure or chronologically**. The first way is considered more effective.
- In the engineering sciences, this section is often **split into several parts** with several subheadings.

Example:

II. DESIGN OF SENSING DEVICE

A. Principle of the Sensing Device Using Silicon Tube and Condenser Microphone

B. Mathematical Model of the Silicon Tube and Condenser Microphone

C. Signal Processing Flow

III. VERIFICATION EXPERIMENT

A. Robustness Experiment in Case 1

B. Results of Case 2

IV. DISCUSSION

V. CONCLUSION

(IEEE Sensors Journal, Vol. 11, Number 9, September 2011, pp 1872 – 1884)

Use of tenses

The past tense and **the present tense** are the most frequently used tenses in this part of the paper. For more information see IV. Use of tenses: overview.

4.2.2. Results

The Results section is the essential part of the paper. It presents the new findings and summarizes them in an objective way.

Notes:

- Very often the **data obtained** are also presented in the form of graphs, tables, schematics, and diagrams.
- **Only relevant results** should be included. They can be organized in chronological order, according to the methods used, or in order of the most important to the least important.
- **Negative aspects** of the research should be mentioned as well.

Use of tenses

The most common tense in the Results section is **the present tense**.

For more information on the use of the present perfect tense and the past tense see Notes in IV. Use of tenses: overview.

4.2.3. Discussion

The Discussion section

- discusses the **main objectives and compares them with the results**,
- explains **how the results differ** from those expected or those obtained by other researchers,
- shows how and if the results **agree or contrast with the previous knowledge**, and explains the **author's contribution** to existing knowledge,

- states the **logical implications** of the results and suggests **further study or applications**,
- in papers based on experiments, it should include **uncertainty analysis**, i.e. it should assess the confidence in the results of measurements by estimating the errors due to instrumentation, methodology, or measurements.

Notes:

- Contrary to the Results section, which presents the results in an objective way, the Discussion section should contain the **author's personal interpretation** of the results.
- Negative results should be explained, too.

The **Results** section and the **Discussion** section are presented either as **two separate sections** or, quite often, as **one combined**.

Use of tenses

Tenses in the Discussion section are used in a way that is similar to the use of tenses in the Results section. For more information see IV. Use of tenses: overview.

4.2.4. Conclusion(s)

The Conclusion(s) section

- assesses what has been done: **interprets the data** in the context of the original problem and explains what **the results contribute to the state of the art**,
- **draws conclusion(s)** from the results and explains their implications,
- often **indicates future work**.

The conclusion(s) should relate directly to the problems stated in the Introduction. Many readers will only look at the Introduction and Conclusion(s) hoping they will give them an idea of what problem was investigated and how it was solved. If they find the problem and its solution interesting, they will want to learn more about the details presented in the other parts of the paper. You are, therefore, recommended to pay great attention to these two parts and to write them last.

Use of tenses

The two **most frequent** tenses in the Conclusion(s) section are the **present tense** and the **present perfect** tense. For more information see IV. Use of tenses: overview.

5. Acknowledgement

In the **Acknowledgement** the authors **express thanks** to those who offered any kind of assistance or financial support. Some journals require the financial support to be acknowledged separately.

Use of tenses

The present tense, the present conditional, and the past tense are the most frequently used verb forms. For more information see IV. Use of tenses: overview.

6. Nomenclatures and Appendices (if necessary)

The Nomenclature presents a list and an explanation of all symbols used in the text.

The Appendices contain additional, explanatory data to illustrate the points made in the paper.

7. References

The references are given in square brackets, e.g. **[5]**, in the order as they appear in the text. For referencing follow the style recommended by the relevant journal.

Examples from IEEE Sensors Journal, vol. 11, no. 9, Sept. 2011 and vol. 11, no. 10, Oct. 2011 and IEEE Transactions on Energy Conversion, vol. 22, no. 3, Sept. 2007:

[13] J. Vanier and C. Audoin, *The Quantum Physics of Atomic Frequency Standards*. New York: Adam Hilger, 1992.

[18] L. Hollberg et al., "Optical frequency standards and measurements," *IEEE J. Quantum Electron.*, vol. 37, no. 12, pp. 1502-1513, Dec. 2001.

[24] D. Biel and E. Fossas, "Some experiments on chattering suppression in power converters," in *Proc. IEEE Conf. Control Appl. (CCA), Saint Petersburg, Russia, July 2009*, pp. 1523-1528.

III. Author declaration

Some journals will publish a paper only if a statement/author declaration is attached saying that **the paper presents an original contribution** to the researched problem and that **the facts have not been published elsewhere**.

Example:

We the undersigned declare that our paper/manuscript is original, that it has not been published before and is not being considered for publication in any form. We further state that it has not been submitted for publication to any other publisher. We also confirm that the manuscript has been read and approved by all the authors. We further confirm that we have followed the regulations concerning intellectual property and declare that all work of other authors in any form (ideas, equations, figures, tables, programs) has been properly acknowledged. We understand that the corresponding author is the only contact person for the editorial process.

Signed by all authors

Author

Signature

Date

IV. Use of tenses: overview and examples

Usage may vary depending on the journal and also on the subjective attitude of the author. The usage described below should be understood as recommendations based on the study of a number of respected journals.

Tense

most commonly used

Purpose

PRESENT	description of paper content
	statement of problem
	description of problem background (established knowledge/fact)
	reference to literature (established knowledge)
	reference to and description of graphs, tables
	description of numerical methods, modelling, simulations
	description of apparatus used
	presentation of results, discussion, drawing conclusions
	acknowledgement of assistance
PRESENT PERFECT	description of problem background (development over a period of time, recent development, completed development)
	reference to literature (published over a period of time or

	recently)
	presentation of results, discussion, drawing conclusions
PAST	description of materials and methods used and experiments done
	description of problem background (usually dated development or activity)
	reference to literature (dated reference; reference to activity carried out as part of the research)
	statement of sources of financial assistance
FUTURE	description of future work
	prediction of what is to come
	prediction of what will happen if a condition is fulfilled

Tense(s) most commonly used	Part of paper
ABSTRACT	present
INTRODUCTION	present, present perfect
MATERIALS and METHODS	past, present
RESULTS	present
DISCUSSION	present
CONCLUSION(S)	present, present perfect

For information on tenses not included in the table see Notes.

Examples

PRESENT TENSE

Description of paper content

- *This paper presents*
- *In this paper, a simple and novel micro-displacement sensor is proposed and studied.*
- *This paper focuses on specific spectra of the PPG signal and demonstrates the importance of*
- *The aim of this paper is to develop*
- *The paper is organized as follows. In Section II various approaches are briefly reviewed.*

Statement of problem (and proposed solution)

- *Wind turbines based on the DFIG are very sensitive to grid disturbances, especially to voltage dips. A detailed theoretical analysis is necessary. Several practical questions arise when To answer these questions we present an original approach to*

Description of problem background (established knowledge/fact)

- *The induction motor is one of the most common electromechanical energy conversion devices.*
- *Nowadays, there are numerous natural and man-made complex networks, such as the internet, communication networks, and social networks.*
- *Failure is a common occurrence in software development.*
- *The induction motor is one of the most common electromechanical energy conversion devices.*

Reference to literature (established knowledge)

- *As a general approach, if the switching is periodic and very fast, the average theory [34] is applicable and thus only the static time-average model needs to be considered [35].*

Reference to and description of graphs, tables

- The field lines are plotted in Fig. 7.
- Fig. 6 shows
- The fourth column gives
- Results of Experiment Set I can be seen in Fig. 2.

Description of numerical methods, modelling, simulations

- The equation that describes is as follows:
- Substitution of (4) in (5) yields
- At first, we devise two numerical models to measure and accurately. The underlying idea for devising the numerical models is to derive exact representation of the components of using invariants associated with the physical model. These invariants are the parameters of the numerical models.
- The proposed harmonic mitigators alongside with the VCIMD are simulated to demonstrate the performance of the proposed converter systems. Fig. 9 shows

Description of apparatus used

- The MPV is a hybrid monostatic/multistatic sensor. The transmitters and receivers are rigidly attached and move in lockstep, but for each sensor location there are five receiver locations and

Presentation of results, discussion, drawing conclusions

- The proposed DESM is an important alternative for electric traction applications.
- The test data BSOC estimation result shows that the proposed FNNRGA is very acceptable.
- This system needs more detection time than X-ray because the system requires the driver and all fellow passengers to get out of the vehicles, but compared with the hands-on searching by border officers, the system can reduce the detection time without the dangers such as the exposure to radiation.
- In order to represent the nonlinearities of the plant, a novel fuzzy model for gas turbines is proposed. The comparison with conventional linear models of gas turbines indicates that the fuzzy model exhibits the best performance.
- From the outcome of our investigation it is possible to conclude that

Acknowledgement of assistance

- The authors wish/would like to express their thanks
- Financial support from the Czech Science Foundation, Grant No., (name of project), is gratefully acknowledged.

PRESENT PERFECT TENSE

Description of problem background (development over a period of time, recent development, completed development)

- In the last decade, interest in the application of wireless body network (WBN) has grown considerably.
- In recent years, research into has become very popular.
- The online partial discharge diagnosis has been recently accepted as
- The rapid development of computer technology has made it possible to

Reference to literature (published over a period of time or recently)

- Many studies have focused on optical analysis of the PPG signal [3] - [9].
- Recently, different studies have been proposed that try to predict the evolution of the electrical variables of the machine by means of simulation studies.

Presentation of results, discussion, drawing conclusions

- In this paper, an efficient algorithm has been developed.

- *We have achieved very good results in*
- *The previous sections have shown that*

PAST TENSE

Description of materials and methods used and experiments done

- *Experimental tests were run on a test bench consisting of*
- *The following procedure was used to*
- *All the measurements were carried out with*

Description of problem background (dated development or activity)

- *Initially, central power generation was promoted because transformation of fuel is more difficult than transmission of the generated power.*
- *Calculus of integer orders was once the basic essential mathematical tool for analysis, synthesis, response behavior*

Reference to literature (dated reference; reference to activity carried out as part of the research)

- *A detailed milling process description was given by Scott in 1995 [8].*
- *..... was experimentally measured by [7].*
- *..... electrodes were used for this purpose [15].*

Statement of sources of financial assistance

- *This research/work was supported by the European Regional Development Fund and Ministry of Education, Youth and Sports of the Czech Republic under Project No.*

FUTURE TENSE

Description of future work

- *Future work will study the conditions for closed loop stability and robustness of the proposed supervisory controller.*

Prediction of what is to come

- *In this paper, first the design and optimization of will be reported. The process will be detailed. The will be compared to simulation results.*
- *Future work will involve*

Prediction of what will happen if a condition is fulfilled

- *In this region the phase response is continuous and will go counterclockwise as the frequency increases. If and < 1 , then the response will pass only through the zero phase.*

PRESENT CONTINUOUS TENSE

The present continuous tense is very **rare** and is used when describing a gradual change:

- *The demand for energy is increasing rapidly with increasing population and industrialization.*

Notes on the use of tenses

DESCRIPTION OF BACKGROUND

The **present perfect tense** is often accompanied by such words as “recently, traditionally, over/in the last decade, over/in the last few years”.

The **past tense** is used when the time of the activity is stated or implied:

- *Initially, central power generation was promoted because transformation of fuel is more difficult than transmission of the generated power.*

Where there is no mention of the period of time, **the present tense competes with the present perfect tense** with only a slight difference in meaning:

- *The permanent magnet synchronous machines have been used/are used in a number of applications.*

When accompanied by such words/phrases as “in the last decade”, the present perfect tense is the only choice.

REFERENCE TO LITERATURE

The present perfect tense is (quite often) used when the reference is to more than one researcher/study/phenomenon/method (the period of time is implied by such words as “many, several”):

- *Many researchers [4] – [10] have observed that ...*

The past tense is used when the reference is dated or describes activities carried out as part of the research:

- *A detailed milling process description was given by Scott in 1995 [8].*

- *..... electrodes were used for this purpose [15].*

The present tense is often used with such words as “note, argue, make the point”.

- *X [6] makes the point that adequate testing is often ignored.*

All these tenses can be found, without discrimination, where there is no direct reference to time:

- *A new modelling method is/was/has been proposed in [1].*

PRESENTATION OF RESULTS, DISCUSSION, DRAWING CONCLUSIONS

In the Result, Discussion and Conclusions sections the present tense is more frequent than the present perfect. In some cases, both are used without much difference:

- *The results obtained indicate/have indicated that*

- *The paper clearly shows/has shown that*

The present tense is the choice when stating something as a fact:

- *The experimental results are in excellent agreement with the simulation results.*

- *The method is an effective way to improve*

The present perfect tense is used when referring to what has been found/proved/achieved through the research:

- *It has been found/proved that*

- *Very accurate results have been achieved using*

The past tense is relatively rare and is mostly used to describe the activity that was necessary as part of the research:

- *The sensing performance of* was numerically studied to explore which sensory system would be promising for

Description of apparatus versus Description of materials and methods used and experiments done

Note the use of tenses in the following extract:

- *The experimental station has an upper and a lower stand. (= description of what it looks like). The motor was placed vertically on the lower stand. The rotor was attached to the motor housing through the lower bearing. The upper bearing was mounted on the upper stand. (= description of what was done)*

