

MATHMOD CONFERENCE PUBLICATIONS—*FINAL PAPER* FOR REGULAR PAPER AND SHORT PAPER CONTRIBUTIONS

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Abstract. This is a detailed description of how to prepare and submit a *Final Paper* to appear in the Proceedings of MATHMOD 2009, the *Sixth International Vienna Conference on Mathematical Modelling*. After general remarks, shortly the usual contents for a final contribution for contribution types *Regular paper*, *Special Session Regular Paper*, and *Short Paper* are sketched.

Main emphasis of this contribution is put on typesetting rules for the *Final Paper*, which are supported by a Word template file and a TeX template file. In subsections general and special rules and formats for typesetting are introduced: paper format, title, organization of sections and subsections, listings, figures, and table, mathematical formulas, special fonts, citations and references. Next, authors of MATHMOD 2009 contributions are informed, how to use the template files and how to prepare and submit a PDF version of their contributions correctly. For information of authors, the Copyright regulations and possibilities for post-conference publications are explained.

As for MATHMOD 2009 publications, four abstracts are necessary, a further section tries to prevent further confusion by explaining aim, content, and other attributes of the four abstracts *Submission Abstract*, *Review Abstract*, *Proceedings Abstract*, and *Final Paper Abstract* – the last being these lines. The contribution concludes with examples for reference style.

1 General remarks

Proceedings of MATHMOD 2009 are published in the series ARGESIM-Reports with ISBN 3-901608-25-7, in two volumes. Editors of MATHMOD 2009 Proceedings are I. Troch and F. Breitenecker. Papers accepted for presentation during MATHMOD 2009 will appear in the Conference Proceedings which will consist of two parts:

- MATHMOD 2009 Proceedings Volume 1 is a printed Abstract Volume containing an abstract (summary) of each contribution of ONE page length (Regular Paper, Special Session Regular Paper, Short Paper, Student Poster) – called *Proceedings Abstract*.
- MATHMOD 2009 Proceedings Volume 2 is a CD with final contribution for *Regular Paper*, *Special Session Regular Paper* (all minimum 6 pages, maximum 12 pages) and *Short Paper* (4 pages) – called *Final Paper*.

Therefore, authors are kindly requested to provide two *PDF files*, one containing the one sided *Proceedings Abstract* and the other containing the *Final Paper*. No editing or retyping will be done by the editors. Hence, typing or printing quality respectively must be excellent in order to allow for good reproduction. We strongly recommend that authors make use of the WORD template or TEX template, where all formats are correctly predefined. Moreover, authors are kindly requested to stick to the Copyright regulations as stated on the web site and given in Section 4. Furthermore, contributions to 6th MATHMOD Vienna will not only appear in the conference Proceedings, but also post conference publications are offered for contributions of excellent quality.

Please note, that Proceedings Abstracts and/or Final Paper will be included in the conference Proceedings only, if all requirements are fulfilled:

- *Proceedings Abstract* and *Final Paper* must arrive in time by uploading via *MM-Conftool* (see indicated deadlines); for a *Student Poster* only the *Proceedings Abstract* is necessary
- Proper payment of conference fee of at least one author (usually corresponding author) must be made in time (see deadlines). Please remember: student fees are not applicable to authors of *Regular Papers* or *Short Papers*, unless a co-author has paid standard fees.

2 Content of final paper

The paper starts with *title*, list of *authors*, *organisations* of authors, and name, address and email of the *corresponding author*. The body of the contribution should start with an abstract of 10 - 15 lines. This abstract – *Full Paper Abstract* – is a classical abstract and may also be very similar to the *Submission Abstract*, which the *MM-Conftool* requires during contribution submission – details see Section 6.

We recommend starting with an *Introduction* where you formulate your problem or task respectively, present the state-of-the-art and establish the position of your work in the international scene. The subsequent sections are devoted to the presentation of your work. The last section of the body of your manuscript should be *Summary or Conclusions*, respectively. Whenever appropriate, an acknowledgment can follow your Summary or Conclusions section. The very last section is the reference section.

Organization of the body of a paper depends on its contents. Yet, we recommend organizing it in numbered sections, and numbered subsections – if necessary, for easy referencing.

Figures and tables help in understanding the content. Therefore authors are encouraged to include tables and figures of any kind, which all must have a legend, and must be numbered – tables and figures separately. Especially in case of bitmap graphics, please make sure, that they are clear and rich in contrast and of a size which allows for easy and comfortable reading of all numbers and characters within the final PDF file. Thickness and size of letters should be the same as that of typed letters.

3 Typesetting rules for final paper

For a good appearance of the collection of papers it is of intrinsic importance that all papers are of the same shape. Therefore, please stick as closely as possible to these guidelines, which are a sample of how your full text paper should look like. In any case, we strongly recommend to make use of the templates. All papers must be written in **English** (British or American spelling, British spelling preferred). If English is not your native language, please consult whenever appropriate, a colleague who's English can be regarded as impeccable. If the quality of the language is too poor, this can prevent your abstract/paper from being included in the Proceedings.

We strongly recommend authors to make use of the Word template or TeX template, which provides all necessary styles and formats. The Word—developed in Microsoft Office—can also be used in Open Office – with some limitations. In summary, your Final Paper should look like this text template, but with appropriate length.

3.1 Final paper format

Final Papers are to be written such that the text (including title, figures etc.) covers when printed an area of height 257 mm and of width 160 mm on DIN A4 page (with margins of 25 mm at both sides and 20 mm on top and bottom). The whole text is to be written in **single column**. Two-column abstracts will not be accepted! Moreover, use whenever possible characters of 10 pt size of for the text (default format in WORD template and TEX template), and do not use extremely narrower fonts in order to have more space.

The final contribution for a *Regular Paper* or a *Special Session Regular Paper* must have a minimum length of six pages and should not exceed twelve pages, and a *Short Paper* has a maximal length of four pages. In any case, pages **must not** be **numbered**. Usually the formats in the templates take care on proper page breaks; in some cases manual page breaks can make better break positions.

3.2 Final paper title

We ask the authors to take care on a correct typing of the title header, consisting of paper title, list of authors, institutions of authors, and information on the corresponding author (the templates in WORD and TEX provide predefined formats for the style of these title lines):

1. *Title*. The first line is the title of the paper, centred, bold 12 pt size, in capitals; longer titles may take more lines, but please take care on an appropriate word wrap without hyphenation
2. *List of authors*. Title line is followed by the list of authors, with abbreviated initials, and with superscript numbers for assigned different institutions – if necessary; long lists may be broken into more lines, but take care on an appropriate word wrap without hyphenation and without separation of initials and names
3. *List of authors' institutions*. The list of authors is complemented by the author's institution, company, or organisation, respectively, with city and country. Please give only the main institution, and set the corresponding superscript for the allocation of authors – if necessary.
4. *Corresponding author*. Separated from authors and institution information on the corresponding author should be given, by 'Corresponding Author:', abbreviated initials, name, full address, and email.

3.3 Section organization

Organization of the body of a paper depends on its contents. Yet, we recommend organizing it in numbered sections, and numbered subsections – if necessary, for easy referencing. Sections and subsections are consecutively numbered as usual, with same heading format (all predefined in the templates).

Paragraphs should have 10 pt size and are formatted with justification. Please do not leave additional free space between paragraphs. Paragraphs and sections are separated by a spacing of 6 pt, automatically given by the predefined formats – please do not change.

Breaking-off words may become necessary in order to fill the width of the page. Basic hyphenation is defined with the formats in the templates. For ‘special’ wordings please take care on the special hyphenation, and consult a reputable dictionary for proper hyphenation, if necessary.

No sub-subsections. The style format does not make use of sub-subsections. In order to highlight a new paragraph in a (subsection) especially, a header may be used at the beginning of the first line in bold characters, separated from following text by a dot, and—at your option—three hard blanks, as given here.

3.4 Lists, figures and tables

Lists, figures, pictures, and tables enrich the quality of a paper essentially. A contribution without any lists and figure may be ‘boring’ to read, on the other hand too many lists, figures and tables make a paper looking rather like a technical instruction manual. So please take care on a proper balance between text and figures, and—especially—choose a proper size for the pictures.

Usually listings, figures, pictures and tables are separated from text and centred and are set single on the page. In some cases it might be necessary to put figures and listings e.g. in parallel—here we suggest to make use of table constructs with figures and pictures as table cells.

Lists. For lists, authors may use bulleted itemizations or consecutive enumerations in the formats shown here and predefined in the templates – please do not change. If possible, do not make use of footnotes – put information in parenthesis at an appropriate place. Please note that further new numbered list again starts with first item ‘1’ – changes must be done by the author, if necessary.

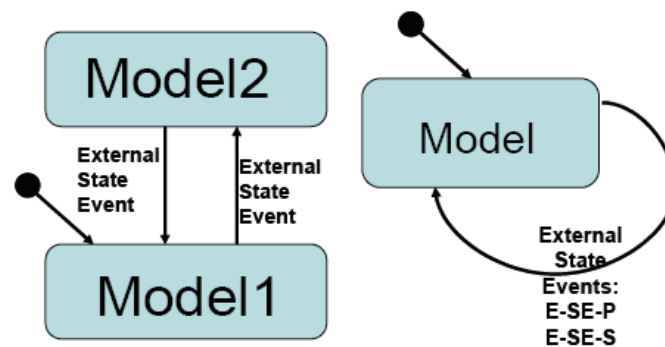


Figure 1. State chart description for hybrid model decomposition types – external state events switch between two models of same type (at left), and external state events switch to a parameterized model of same (at right) - example for figure legend.

Figures. For figures of any kind an appropriate printing quality is necessary, so please make use of high resolution pictures and scale them into required/desired space (do not reduce the size of the picture itself!). As consequence, a *Final Paper* file may have a big size, what makes usually no problems. Whenever possible, please make use of vector graphics, instead of bitmap graphics. Figures are separated from text, and must be centred.

Tables. As tables may have very different nature, no special format it provided (e.g. use of symbols and small pictures in a table, etc). We recommend using basic font style (Times Roman), and 10 pt size or lower for text in the tables. Tables are separated from text, and must be centred.

Legends. Each figure and each table should have a legend below the figure, centred, 9 pt text size, of style ‘Figure 2: text text.’ We encourage authors to compose ‘long’ legends, in order to comment a figure in detail; as consequence, legends may have more than one line—please take care on proper hyphenation; the predefined legend format may produce improper hyphenation. Legends for figures and tables must be numbered consecutively through the paper, figures and tables numbered independently; legend numbering goes beyond the numbering of paragraphs! Figures and tables are cited in the text by ‘Figure 2’ or ‘Table 7’, respectively.

3.5 Mathematical formulas

For typesetting of mathematical formulas, we recommend either use of the capabilities of TeX, or to make use of the Microsoft Formula Editor when using Word. Formula may either be put into continuous text, $E = m \cdot c^2$, or may be separated from text like figures and tables.

If it is necessary to cite formula somewhere in your paper, please take care on numbering of the formula in consecutive order throughout the paper. Formula numbering is supported in TeX automatically, in Word we suggest either using MathType or putting numbers ‘manually’ right aligned next to the centred formula:

$$ml\dot{\varphi} = -mg \sin \varphi - ld\dot{\varphi} \quad (1)$$

Simulator	Hit time	Method
Dymola/Modelica	6.72198	DASSL 500 intervals
Mosilab/Modelica Switch models	6.7204	IDA DASSL Min. step 1e-6, Max. step 0.08
Mosilab/Modelica Pure Modelica	6.7199	Impl. Trapezoidal Min. step 1e-6, Max. step 1e-4
Mosilab/Modelica Parameter switching	6.7224	IDA DASSL Min. step 1e-6, Max. step 0.08
AnyLogic	6.725	Automatic Step size 0.001

Table 1. Model ‘Pendulum with Constraints’, state event detection – simulators (1st column) calculate different hit times for the 4th hit of the pendulum (2nd column), ODE solvers used in 3rd column (example for table legend).

In order to cite a formula, make use of round brackets like (12). Please note that reference citations are made by square brackets like [4]. Formulas in continuous text should have same font size as the text, the size of separated formulas should be chosen appropriately.

3.6 Special fonts

It is recommended, that authors use only the fonts defined in the templates (Times Roman class). If it is necessary to use different fonts, for instance for special characters, or for text in tables and text in figures (in case of vector graphics sometimes automatically generated with the figure and therefore using a genuine font), it is absolutely necessary to embed the font when printing / generating the PDF file (see PDF options, Section X)

3.7 References and citations

References to relevant literature are to be given in a usual format, please consult sample references at the end of these instructions. References are to be listed in alphabetical order and numbered. Citation is by the number only which is to be put in square brackets. The reference list at the end of this paper shows how citations of a book, [2], should be made, demonstrates how citation of a Journal article should look like, [4], gives an example for citation of an article in a collection (book), [3], and also one for an article in a Proceedings volume, [1].

Please do not cite only your own work or reports, but give proper reference to relevant related work of easy access i.e. cite books and articles in journals and conference Proceedings, preferably in English. These references should allow the reader to find more details on the problem, on methods, on algorithms etc. Further, readers who are not yet familiar with your topic but interested in it, should find a few standard references introducing this subject in a well readable manner and, which allow for quick insight and for a judgement on the state-of-the-art.

Citations for a formula make use of round brackets like (12). Sections, subsections, tables and figures are cited with type (initial capital) followed by number, e.g. ‘Figure 3 and Table 2 in Section 4 show ...’

4 Submission of the final paper

We recommend preparation of *Proceedings Abstract* and *Final Paper / Final Short Paper* in TEX / LATEX or WORD using the provided templates. The WORD template `mmprocfinal.dot` is a .dot file, a format template file. After opening, this file generates a `newxx.doc` file, with all necessary formats, and this new file should be immediately stored with a proper name as .doc file, e.g. `mm09_pnumber_author.doc`. Authors may also make use of the TEX template, consisting of a .tex file with text and a class file `mmprocfinal.cls` with the format definitions used – see how to use in this file. If authors make use of a different editing program, please keep strictly to the layout given here.

Proceedings Abstract and *Final Paper* of the contribution must be submitted in PDF format. Please use an appropriate PDF writer for printing your contribution from the prepared Word or TeX source file, and choose carefully the options used. For PDF preparation, choose in any case

- ‘Print quality’ – option for PDF printing
- ‘Send fonts to Adobe PDF’ – option for PDF printing

Last but not least, please keep the deadlines and register in time for participation at MATHMOD 2009, and take care, that payment of conference fee is made in time, in order to include your contribution into the Proceedings.

If a *Final Paper* contains many figures and pictures with very high resolution, the file size may become very big. In this rare case the file with the *Final Paper* may be too big for upload, because of file transfer restrictions somewhere. There, the file may be compressed (zipped), and sent as .zip file.

5 Copyright regulations, post-conference publishing

In general, only papers not published and not being considered for publication elsewhere may be submitted to MATHMOD 2009. ARGESIM/ MMS, TU Vienna, holds the copyright for publication of papers.

If the paper is judged by the reviewers and/or by a special post-conference reviewing process to be of outstanding quality and/or of special interest, then publication of the paper, i.e. of a revised or an *enlarged version* of it, will be considered for publication in journals (in Special Issues or in Regular Issues). The following journals are intended to publish contributions from MATHMOD 2009:

- *MCMDs* – Mathematical and Computer Modelling of Dynamical Systems
- *JIRS* – Journal of Intelligent and Robotic Systems
- *CIT* – Journal of Computing and Information Technology
- *SNE* – Simulation News Europe

Authors will be notified by July 15, 2009 whether or not their paper (or a modified version or an enlarged version of it) is suggested for publication in *MCMDs*, *JIRS*, *CIT*, or *SNE*. Therefore, an author must not submit it or an enlarged version of it before July 15, 2009 elsewhere. If the paper does not appear in one of these journals, then the paper is released for publication elsewhere. In this case, the publication must contain proper reference to the paper having been presented at the MATHMOD 2009 conference and being contained in the Proceedings, respectively.

6 Abstract types at MATHMOD 2009

Publication in MATHMOD 2009 Proceedings requires different abstracts, depending on stage of contribution submission process, review process and final paper submission process. And indeed, the author is confronted with four different abstracts – which might be confusing. In the following it is tried to clear probable confusion and to give proper names to the abstracts:

- Submission Abstract
- Review Abstract
- Proceedings Abstract
- Final Paper Abstract

While the last abstract, the *Final Paper Abstract*, is a classical abstract at the begin of a scientific paper (of the *Final Paper*), all other abstracts are ‘standalone’ abstracts, and in case of *Review Abstract* and *Proceedings Abstract* they represent more a summary or short version of the contribution. In the following, some comments and details on these abstracts are given.

Submission Abstract. The *MM-ConfTool* requires input of an abstract – the *Submission Abstract*, when the contribution is submitted for the first time. This abstract is intended to be part of a web-based online schedule for MATHMOD 2009. Participants will have access to this online schedule with information on sessions, on contributions in session, and on abstracts – the *Submission Abstract* - of these contributions (Figure 2).

The abstract must be provided in plain text, but some HTML codes allow formatting. Please note, that authors can change this abstract also after submission! It might be a good idea, to keep the *Submission Abstract* similar to the *Final Paper Abstract*. The *Submission Abstract* is necessary for all types of contributions, for Regular Papers, Special Session Regular Papers, Short Papers, and Student Posters.

Review Abstract. For contribution review, authors must provide the *Review Abstract*. A template for this abstract can be downloaded from the MATHMOD WWW server, and the author has / had to upload the abstract in time. This abstract is not a classic abstract, but more a kind of summary or short version of the proposed contribution and addresses the reviewers.

This abstract should have a minimum length of two pages for *Regular Papers* and a minimum of one page for *Short Papers* and *Student Posters*. It is not necessary for *Special Session Regular Papers*, because MATHMOD 2009 Special Sessions are based on a different review process.

Proceedings Abstract. From the view of publication, the *Proceedings Abstract* is the most important one. MATHMOD 2009 Proceedings consist of two volumes, the (printed) *Book of Abstracts*, and the *Full Paper Volume* (on CD). The *Proceedings Abstract* will appear in the Book of Abstracts, being the first reference of your contribution. This abstract is more a kind of summary or short version of accepted contribution and addresses all participants and readers or the Proceedings. It also can be seen as a short version of the *Final Paper*.

For this abstract, a WORD template and a TEX template are provided, and we ask the authors to keep strictly to the predefined formats in these templates. The *Proceedings Abstract* is a one-page abstract, and we ask authors to make use of the full space, but not more than one page. And clearly, this abstract is necessary for all types of contributions, i. e. for *Regular Papers*, *Special Session Regular Papers*, *Short Papers*, and *Student Posters*.

* Title of Contribution				Zonal model of lecture-room climatic conditions
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2	Maja	Atanasijevic-Kunc	maja.atanasije	
3				
4				
Add Rows for More Authors				
Please list one author per line. If the contribution has several authors and different organizations, please put an index number of the authors' organizations in the right column. The index numbers have to match the line numbers of the organizations below. Several organizations per author may be separated by commas.				
* Abstract				<p>Various types of mathematical models can be applied for description of climatic conditions in order to obtain the desired model accuracy. One possibility represents the so-called zonal modelling which may be regarded as a link between nodal modelling, where thermodynamic conditions are expected to be completely uniform and computational fluid dynamics (CFD) modelling. In the paper, zonal modelling results, describing important indoor air-quality properties, are presented and evaluated on the basis of measurement data. The purpose of modelling efforts is the evaluation and eventually also the improvement of climatic-conditions control, where, at the same time, three important variables should be inside the prescribed ranges. These variables are temperature, CO₂-concentration and relative humidity in the room. Due to the cross-couplings and system properties the resulting model is a nonlinear and multivariable one.</p>

Figure 2. Example of a *Submission Abstract* for MATMOD 2009 – first to be provided at paper submission process, later changes possible (HTML formatting allowed, content suggested to be similar to *Final Paper Abstract*).

Final Paper Abstract. As each scientific paper, also the accepted final paper to MATHMOD 2009 starts with an abstract – with the Final Paper Abstract. This abstract is a classical abstract within the Final Paper for *Regular Papers*, *Special Session Regular Papers*, and *Short Papers*.

This abstract is part of the *Final Paper*, and template and typing are given by the template for the *Final Paper*. It might be a good idea, to keep the *Final Paper Abstract* similar to the *Submission Abstract*.

7 References

- [1] Breitenecker, F. and Solar, D.: *Models, Methods, Experiments - Modern aspects of simulation languages*. In: Proc. 2nd European Simulation Conference, Antwerpen, 1986, SCS, San Diego, 1986, 195 - 199.
- [2] Casti, J. L.: *Reality Rules – Picturing the World in Mathematics: I, II*. Wiley, New York, 1992.
- [3] Sage, A. P.: *Dynamic Systems*. In: Concise Encyclopedia of Modelling and Simulation, (Eds.: Atherton, D. P. and Borne, Pergamon, Oxford, 1992, 91 - 92.
- [4] Troch, I.: *Modelling for optimal control of systems*. Surveys on Mathematics for Industry, 5 (1995), 203 - 292.