# **Moscow Computer Algebra Conference Extended Abstract Template\***

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#### **Abstract**

The short abstract should have between 5 and 8 lines. The complete text of the extended abstract should be up to 4 pages long in total, i.e. including all figures, tables, references and the short abstract. The title and the authors of the extended abstract should be presented using the proper text formatting like in the template above.

#### **Keywords**

LaTeX class, paper template, paper formatting, computer science, information technologies, conference proceedings

### 1. Introduction

This template provides a consistent LATEX style for use across Computer Algebra Conference publications, and incorporates accessibility and metadata-extraction functionality. This document will explain the major features of the document class.

# 2. Template parameters

There are a number of template parameters which modify some part of the ca-conf document class. This parameters are enclosed in square brackets and are a part of the \documentclass command:

**\documentclass**{ca-conf}

### 3. Front matter

#### 3.1. Title Information

The titles of papers should be use the emphasizing capitalized style.

Use the \title command to define the title of your work. Do not insert line breaks in your title.

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You can use this document as the template for preparing your publication. We recommend using the latest version of the ca-conf style.

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**Table 1** Frequency of Special Characters

Non-English or Math	Frequency	Comments
Ø	1 in 1,000	For Swedish names
$\pi$	1 in 5	Common in math
\$	4 in 5	Used in business
$\Psi_1^2$	1 in 40,000	Unexplained usage

**Table 2**Some Typical Commands

Command	A Number	Comments
\author	100	Author
\table	300	For tables
\table*	400	For wider tables

#### 3.2. Authors and Affiliations

Each author must be defined separately for accurate metadata identification. Multiple authors may share one affiliation. Authors' names should not be abbreviated; use full first names wherever possible. Include authors' e-mail addresses whenever possible.

#### 4. Tables

The ca-conf document class includes the booktabs package—https://ctan.org/pkg/booktabs—for preparing high-quality tables.

Table captions are placed *above* the table.

Because tables cannot be split across pages, the best placement for them is typically the top of the page nearest their initial cite. To ensure this proper "floating" placement of tables, use the environment table to enclose the table's contents and the table caption. The contents of the table itself must go in the tabular environment, to be aligned properly in rows and columns, with the desired horizontal and vertical rules.

Immediately following this sentence is the point at which Table 1 is included in the input file; compare the placement of the table here with the table in the printed output of this document.

To set a wider table, which takes up the whole width of the page's live area, use the environment table\* to enclose the table's contents and the table caption. As with a single-column table, this wide table will "float" to a location deemed more desirable. Immediately following this sentence is the point at which Table 2 is included in the input file; again, it is instructive to compare the placement of the table here with the table in the printed output of this document.

# 5. Math Equations

You may want to display math equations in three distinct styles: inline, numbered or non-numbered display. Each of the three are discussed in the next sections.

### 5.1. Inline (In-text) Equations

A formula that appears in the running text is called an inline or in-text formula. It is produced by the math environment, which can be invoked with the usual **\begin** ... **\end** construction or with the short form \$ ... \$. You can use any of the symbols and structures, from  $\alpha$  to  $\omega$ ,

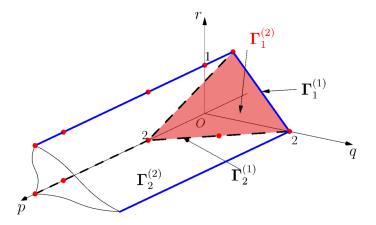


Figure 1: A figure caption

available in LaTeX [21]; this section will simply show a few examples of in-text equations in context. Notice how this equation:  $\lim_{n\to\infty}\frac{1}{n}=0$ , set here in in-line math style, looks slightly different when set in display style. (See next section).

### 5.2. Display Equations

A numbered display equation—one set off by vertical space from the text and centered horizontally—is produced by the equation environment. An unnumbered display equation is produced by the displaymath environment.

Again, in either environment, you can use any of the symbols and structures available in LaTeX; this section will just give a couple of examples of display equations in context. First, consider the equation, shown as an inline equation above:

$$\lim_{n \to \infty} \frac{1}{n} = 0. \tag{1}$$

Notice how it is formatted somewhat differently in the displaymath environment. Now, we'll enter an unnumbered equation:

$$S_n = \sum_{i=1}^n x_i,$$

and follow it with another numbered equation:

$$\lim_{x \to 0} (1+x)^{1/x} = e \tag{2}$$

just to demonstrate LaTEX's able handling of numbering.

# 6. Figures

The figure environment should be used for figures. One or more images can be placed within a figure. If your figure contains third-party material, you must clearly identify it as such, as shown in the example below.

Your figures should contain a caption which describes the figure to the reader. Figure captions go below the figure. Your figures should also include a description suitable for screen readers, to assist the visually-challenged to better understand your work.

Figure captions are placed below the figure.

# 7. Citations and Bibliographies

The use of BibleT<sub>E</sub>X for the preparation and formatting of one's references is strongly recommended. Authors' names should be complete—use full first names ("Donald E. Knuth") not initials ("D. E. Knuth")—and the salient identifying features of a reference should be included: title, year, volume, number, pages, article DOI, etc.

The bibliography is included in your source document with these two commands, placed just before the **\end**{document} command:

**\bibliography**{bibfile}

where bibfile is the name, without the .bib suffix, of the BibT<sub>E</sub>X file.

### 7.1. Some examples

A paginated journal article [2], an enumerated journal article [7], a reference to an entire issue [8], a monograph (whole book) [20], a monograph/whole book in a series (see 2a in spec. document) [14], a divisible-book such as an anthology or compilation [10] followed by the same example, however we only output the series if the volume number is given [11] (so series should not be present since it has no vol. no.), a chapter in a divisible book [32], a chapter in a divisible book in a series [9], a multi-volume work as book [19], an article in a proceedings (of a conference, symposium, workshop for example) (paginated proceedings article) [3], a proceedings article with all possible elements [31], an example of an enumerated proceedings article [12], an informally published work [13], a doctoral dissertation [6], a master's thesis: [4], an online document / world wide web resource [33, 1, 25], a video game (Case 1) [24] and (Case 2) [23] and [22] and (Case 3) a patent [30], work accepted for publication [27], prolific author [28] and [29]. Other cites might contain 'duplicate' DOI and URLs (some SIAM articles) [18]. Multi-volume works as books [16] and [15]. A couple of citations with DOIs: [17, 18]. Online citations: [34, 33, 26, 5].

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### References

- [1] R. Ablamowicz, B. Fauser, Clifford: a maple 11 package for clifford algebra computations, version 11, 2007. URL: http://math.tntech.edu/rafal/cliff11/index.html.
- [2] P. S. Abril, R. Plant, The patent holder's dilemma: Buy, sell, or troll?, Communications of the ACM 50 (2007) 36–44. doi:10.1145/1188913.1188915.
- [3] S. Andler, Predicate path expressions, in: Proceedings of the 6th. ACM SIGACT-SIGPLAN symposium on Principles of Programming Languages, POPL '79, ACM Press, New York, NY, 1979, pp. 226–236. doi:10.1145/567752.567774.
- [4] D. A. Anisi, Optimal Motion Control of a Ground Vehicle, Master's thesis, Royal Institute of Technology (KTH), Stockholm, Sweden, 2003.
- [5] S. Anzaroot, A. McCallum, UMass citation field extraction dataset, 2013. URL: http://www.iesl.cs.umass.edu/data/data-umasscitationfield.

- [6] K. L. Clarkson, Algorithms for Closest-Point Problems (Computational Geometry), Ph.D. thesis, Stanford University, Palo Alto, CA, 1985. UMI Order Number: AAT 8506171.
- [7] S. Cohen, W. Nutt, Y. Sagic, Deciding equivalances among conjunctive aggregate queries, J. ACM 54 (2007). doi:10.1145/1219092.1219093.
- [8] J. Cohen (Ed.), Special issue: Digital Libraries, volume 39, 1996.
- [9] B. P. Douglass, D. Harel, M. B. Trakhtenbrot, Statecarts in use: structured analysis and object-orientation, in: G. Rozenberg, F. W. Vaandrager (Eds.), Lectures on Embedded Systems, volume 1494 of *Lecture Notes in Computer Science*, Springer-Verlag, London, 1998, pp. 368–394. doi:10.1007/3-540-65193-4\_29.
- [10] I. Editor (Ed.), The title of book one, volume 9 of *The name of the series one*, 1st. ed., University of Chicago Press, Chicago, 2007. doi:10.1007/3-540-09237-4.
- [11] I. Editor (Ed.), The title of book two, The name of the series two, 2nd. ed., University of Chicago Press, Chicago, 2008. doi:10.1007/3-540-09237-4.
- [12] M. V. Gundy, D. Balzarotti, G. Vigna, Catch me, if you can: Evading network signatures with web-based polymorphic worms, in: Proceedings of the first USENIX workshop on Offensive Technologies, WOOT '07, USENIX Association, Berkley, CA, 2007.
- [13] D. Harel, LOGICS of Programs: AXIOMATICS and DESCRIPTIVE POWER, MIT Research Lab Technical Report TR-200, Massachusetts Institute of Technology, Cambridge, MA, 1978.
- [14] D. Harel, First-Order Dynamic Logic, volume 68 of Lecture Notes in Computer Science, Springer-Verlag, New York, NY, 1979. doi:10.1007/3-540-09237-4.
- [15] L. Hörmander, The analysis of linear partial differential operators. III, volume 275 of *Grundlehren der Mathematischen Wissenschaften [Fundamental Principles of Mathematical Sciences]*, Springer-Verlag, Berlin, Germany, 1985. Pseudodifferential operators.
- [16] L. Hörmander, The analysis of linear partial differential operators. IV, volume 275 of Grundlehren der Mathematischen Wissenschaften [Fundamental Principles of Mathematical Sciences], Springer-Verlag, Berlin, Germany, 1985. Fourier integral operators.
- [17] IEEE, Ieee tcsc executive committee, in: Proceedings of the IEEE International Conference on Web Services, ICWS '04, IEEE Computer Society, Washington, DC, USA, 2004, pp. 21–22. doi:10.1109/ICWS.2004.64.
- [18] M. Kirschmer, J. Voight, Algorithmic enumeration of ideal classes for quaternion orders, SIAM J. Comput. 39 (2010) 1714–1747. URL: http://dx.doi.org/10.1137/080734467. doi:10.1137/080734467.
- [19] D. E. Knuth, The Art of Computer Programming, Vol. 1: Fundamental Algorithms (3rd. ed.), Addison Wesley Longman Publishing Co., Inc., 1997.
- [20] D. Kosiur, Understanding Policy-Based Networking, 2nd. ed., Wiley, New York, NY, 2001.
- [21] L. Lamport, Lamp
- [22] N. Lee, Interview with bill kinder: January 13, 2005, Comput. Entertain. 3 (2005). doi:10. 1145/1057270.1057278.
- [23] D. Novak, Solder man, in: ACM SIGGRAPH 2003 Video Review on Animation theater Program: Part I Vol. 145 (July 27–27, 2003), ACM Press, New York, NY, 2003, p. 4. URL: http://video.google.com/videoplay?docid=6528042696351994555. doi:99.9999/woot07-S422.
- [24] B. Obama, A more perfect union, Video, 2008. URL: http://video.google.com/videoplay? docid=6528042696351994555.
- [25] Poker-Edge.Com, Stats and analysis, 2006. URL: http://www.pkredge.com/statsYYFWWQ.php.
- [26] R Core Team, R: A language and environment for statistical computing, 2019. URL: https://www.R-project.org/.
- [27] B. Rous, The enabling of digital libraries, Digital Libraries 12 (2008). To appear.
- [28] M. Saeedi, M. S. Zamani, M. Sedighi, A library-based synthesis methodology for reversible logic, Microelectron. J. 41 (2010) 185–194.
- [29] M. Saeedi, M. S. Zamani, M. Sedighi, Z. Sasanian, Synthesis of reversible circuit using cycle-based approach, J. Emerg. Technol. Comput. Syst. 6 (2010).

- [30] J. Scientist, The fountain of youth, 2009. Patent No. 12345, Filed July 1st., 2008, Issued Aug. 9th., 2009.
- [31] S. W. Smith, An experiment in bibliographic mark-up: Parsing metadata for xml export, in: R. N. Smythe, A. Noble (Eds.), Proceedings of the 3rd. annual workshop on Librarians and Computers, volume 3 of *LAC '10*, Paparazzi Press, Milan Italy, 2010, pp. 422–431. doi:99. 9999/woot07-S422.
- [32] A. Z. Spector, Achieving application requirements, in: S. Mullender (Ed.), Distributed Systems, 2nd. ed., ACM Press, New York, NY, 1990, pp. 19–33. doi:10.1145/90417.90738.
- [33] H. Thornburg, Introduction to bayesian statistics, 2001. URL: http://ccrma.stanford.edu/~jos/bayes/bayes.html.
- [34] TUG, Institutional members of the T<sub>E</sub>X users group, 2017. URL: http://www.tug.org/instmem.html.

# A. Local Compilation

For compile project, please run:

latexmk

### **B.** Online Resources

Overleaf project: https://www.overleaf.com/read/kgzzzcnfcpvm#5d1dbc.