

## DIMACS Book Series Sample

Author One and Author Two

*This paper is dedicated to our advisors.*

ABSTRACT. This paper is a sample prepared to illustrate the use of the American Mathematical Society's L<sup>A</sup>T<sub>E</sub>X document class `dimacs-1`. Please be sure to read Section 3. It contains instructions for authors that apply specifically to volumes in the DIMACS series. Volume 61 of the DIMACS book series (Bioconsensus) is an example of a volume prepared using the guidelines contained herein.

### **This is an unnumbered first-level section head**

This is an example of an unnumbered first-level heading.

### THIS IS A SPECIAL SECTION HEAD

This is an example of a special section head<sup>1</sup>.

### **1. This is a numbered first-level section head**

This is an example of a numbered first-level heading.

**1.1. This is a numbered second-level section head.** This is an example of a numbered second-level heading.

**This is an unnumbered second-level section head.** This is an example of an unnumbered second-level heading.

1.1.1. *This is a numbered third-level section head.* This is an example of a numbered third-level heading.

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Support information for the second author.

<sup>1</sup>Here is an example of a footnote. Notice that this footnote text is running on so that it can stand as an example of how a footnote with separate paragraphs should be written.

And here is the beginning of the second paragraph.

*This is an unnumbered third-level section head.* This is an example of an unnumbered third-level heading.

LEMMA 1.1. *Let  $f, g \in A(X)$  and let  $E, F$  be cozero sets in  $X$ .*

- (1) *If  $f$  is  $E$ -regular and  $F \subseteq E$ , then  $f$  is  $F$ -regular.*
- (2) *If  $f$  is  $E$ -regular and  $F$ -regular, then  $f$  is  $E \cup F$ -regular.*
- (3) *If  $f(x) \geq c > 0$  for all  $x \in E$ , then  $f$  is  $E$ -regular.*

The following is an example of a proof. It uses the `\begin{proof}`, `\end{proof}` environment.

PROOF. Set  $j(\nu) = \max(I \setminus a(\nu)) - 1$ . Then we have

$$\sum_{i \notin a(\nu)} t_i \sim t_{j(\nu)+1} = \prod_{j=0}^{j(\nu)} (t_{j+1}/t_j).$$

Hence we have

$$(1.1) \quad \prod_{\nu} \left( \sum_{i \notin a(\nu)} t_i \right)^{|a(\nu-1)| - |a(\nu)|} \sim \prod_{\nu} \prod_{j=0}^{j(\nu)} (t_{j+1}/t_j)^{|a(\nu-1)| - |a(\nu)|} \\ = \prod_{j \geq 0} (t_{j+1}/t_j)^{\sum_{\nu: j(\nu) \geq j} (|a(\nu-1)| - |a(\nu)|)}.$$

By definition, we have  $a(\nu(j)) \supset c(j)$ . Hence,  $|c(j)| = n - j$  implies (5.4). If  $c(j) \notin a$ ,  $a(\nu(j))c(j)$  and hence we have (5.5).  $\square$

This is an example of an ‘extract’. The magnetization  $M_0$  of the Ising model is related to the local state probability  $P(a) : M_0 = P(1) - P(-1)$ . The equivalences are shown in Table 1.

TABLE 1

	$-\infty$	$+\infty$
$f_+(x, k)$	$e^{\sqrt{-1}kx} + s_{12}(k)e^{-\sqrt{-1}kx}$	$s_{11}(k)e^{\sqrt{-1}kx}$
$f_-(x, k)$	$s_{22}(k)e^{-\sqrt{-1}kx}$	$e^{-\sqrt{-1}kx} + s_{21}(k)e^{\sqrt{-1}kx}$

DEFINITION 1.2. This is an example of a ‘definition’ element. For  $f \in A(X)$ , we define

$$(1.2) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

REMARK 1.3. This is an example of a ‘remark’ element. For  $f \in A(X)$ , we define

$$(1.3) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

EXAMPLE 1.4. This is an example of an ‘example’ element. For  $f \in A(X)$ , we define

$$(1.4) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

EXERCISE 1.5. This is an example of the `xca` environment. This environment is used for exercises which occur within a section.



FIGURE 1. This is an example of a figure caption with text.



FIGURE 2

The following is an example of a numbered list.

- (1) First item. In the case where in  $G$  there is a sequence of subgroups

$$G = G_0, G_1, G_2, \dots, G_k = e$$

such that each is an invariant subgroup of  $G_i$ .

- (2) Second item. Its action on an arbitrary element  $X = \lambda^\alpha X_\alpha$  has the form

$$(1.5) \quad [e^\alpha X_\alpha, X] = e^\alpha \lambda^\beta [X_\alpha X_\beta] = e^\alpha c_{\alpha\beta}^\gamma \lambda^\beta X_\gamma,$$

- (a) First subitem.

$$-2\psi_2(e) = c_{\alpha\gamma}^\delta c_{\beta\delta}^\gamma e^\alpha e^\beta.$$

- (b) Second subitem.

- (i) First subsubitem. In the case where in  $G$  there is a sequence of subgroups

$$G = G_0, G_1, G_2, \dots, G_k = e$$

such that each subgroup  $G_{i+1}$  is an invariant subgroup of  $G_i$  and each quotient group  $G_{i+1}/G_i$  is abelian, the group  $G$  is called *solvable*.

- (ii) Second subsubitem.

- (c) Third subitem.

- (3) Third item.

Here is an example of a cite. See [3].

THEOREM 1.6. *This is an example of a theorem.*

THEOREM 1.7 (Marcus Theorem). *This is an example of a theorem with a parenthetical note in the heading.*

## 2. Some more list types

This is an example of a bulleted list.

- $\mathcal{J}_g$  of dimension  $3g - 3$ ;
- $\mathcal{E}_g^2 = \{\text{Pryms of double covers of } C = \square \text{ with normalization of } C \text{ hyper-elliptic of genus } g - 1\}$  of dimension  $2g$ ;

- $\mathcal{E}_{1,g-1}^2 = \{\text{Pryms of double covers of } C = \square_{P^1}^H \text{ with } H \text{ hyperelliptic of genus } g-2\}$  of dimension  $2g-1$ ;
- $\mathcal{P}_{t,g-t}^2$  for  $2 \leq t \leq g/2 = \{\text{Pryms of double covers of } C = \square_{C''}^{C'} \text{ with } g(C') = t-1 \text{ and } g(C'') = g-t-1\}$  of dimension  $3g-4$ .

This is an example of a ‘description’ list.

**Zero case:**  $\rho(\Phi) = \{0\}$ .

**Rational case:**  $\rho(\Phi) \neq \{0\}$  and  $\rho(\Phi)$  is contained in a line through 0 with rational slope.

**Irrational case:**  $\rho(\Phi) \neq \{0\}$  and  $\rho(\Phi)$  is contained in a line through 0 with irrational slope.

### 3. Special instructions from DIMACS

Here are some additional instructions from DIMACS. They are issued in the hope that the volumes in this series will have a uniform appearance. DIMACS can if requested provide help to authors who are not familiar with latex.

The American Mathematical Society has a number of files designed to aid authors of papers destined for volumes in the DIMACS series. They can be found on the following web page:

<http://www.ams.org/tex/author-info.html>

Just click on the line designated for DIMACS volumes. But you should ignore the sample article you will find there. It has been supplanted by the article you are reading.

#### General considerations:

Please use a 10 point font. This is the default font.

AMS provides a special command for absolute values.

Figures should be cited in the form Figure 1, tables as Table 1.

Captions for tables should appear at the top of the table. Captions for figures at the bottom.

Please use the

`\begin{proof}`, `\end{proof}` environment.

Sections should be numbered. Only the first word of a section title should be capitalized. There are obvious exceptions involving proper names.

The “thanks” command on the first page should be used only to acknowledge grant support. Any other acknowledgments belong at the end of the paper in a section labelled Acknowledgments. This section should *not* be numbered. The proper command is

`\section*{Acknowledgements}`.

The command

`\title[short title]{longer title}`

will make the short title the running head, and the longer title the real title of your paper

Please use the 2000 Math Subject Classification, and show the Copyright information as 20xx American Mathematical Society, where 20xx is the appropriate year. Also, please specify style A for the bibliography. These commands take the format

```
\copyrightinfo{20xx}{American Mathematical Society}
\subjclass[2000]{. . .}
\begin{thebibliography}{A}
```

The subject classifications should just include the code numbers (like 06A15) and not the text description of the code.

The term “et al.” is an abbreviation from Latin. Despite this, it should NOT be in italics (See the Chicago Style Manual). To indicate Harold Johnson and other authprs, you would write Harold Johnson et al. with no punctuation before the “et”.

If a colon separates a phrase from a sentence, the first word after the colon does not get capitalized. If it separates two sentences, the first word after the colon is capitalized.

### Citations:

There are two acceptable forms for citations. The proper style for your article depends upon the style decision made by the editor(s) of your volume. Citations should be listed alphabetically by the first author’s last name. Style 1 would cite by reference number. Multiple citations should be in numerical order (e.g., see [6] and [9], rather than see [9] and [6]). Also, a citation like “for trees [2]” is correct, while “for trees ([2])” is not. On the other hand, saying “for trees (see [2], p. 198)” is acceptable.

Style 2 would cite by a sequence of capital letters, as in [HKT6]. Sample formats are provided in the bibliography.

Here is an itemized list of some picky things involving citations.

- (1) In the bibliography, the numbers should be enclosed in square brackets, as in [23] for reference 23. If you use the suggested command to create the bibliography, this is the default.
- (2) Names of journals should either be spelled out in full, or the approved abbreviation from Math. Reviews used. Please be consistent. If a journal is abbreviated in one citation in your paper, it should be abbreviated in all citations. Journal names are to be in italics. You can abbreviate some journal titles and not others, as long as you are consistent.
- (3) The references appearing in the bibliography at the end of this document provide the style guide.
- (4) Titles of articles are not in italics. This applies to both journal articles and articles appearing in books.
- (5) Book titles are in italics. All words are capitalized except for connectives like and, but, etc. (See [3]).
- (6) Publishers should not be abbreviated. The format follows: American Mathematical Society, Providence, 1993.
- (7) Only the first word in a title of a paper gets a capital in a citation.
- (8) Journal citations have a different format for indicating year of publication. See [1] in the bibliography.
- (9) Two authors are indicated as I. Smart and G. Bush, while three or more authors are indicated with an extra comma as I. Smart, G. Bush, and S. Spade as in [7].
- (10) First names of authors should be indicated as they appear in the reference you are citing. Again be consistent. If you use B. Leclerc in one citation,

you should use it in all citations. Hyphenations should be preserved. Thus Jean-Claude would be abbreviated to J.-C.

- (11) Each citation should include names of all authors. Please do not use shorthand like \_\_\_\_\_ to denote repeats.
- (12) Do not use the symbol & to denote the word “and”.
- (13) For a paper that appears as part of a volume: see the bibliography for guidelines. Examples are provided by [4] and [5].
- (14) Doctoral Dissertations [6] are treated as if they were books. Technical reports [8] are also treated as if they were books.
- (15) Personal communications can be referred to simply in the format author, personal communication, date.
- (16) Papers appearing in the current volume are cited as in [9].

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- [HKT6] sample of style 2 citation

DEPARTMENT OF MATHEMATICS, LOUISIANA STATE UNIVERSITY, BATON ROUGE, LOUISIANA 70803

*Current address:* Department of Mathematics and Statistics, Case Western Reserve University, Cleveland, Ohio 43403

*E-mail address:* xyz@math.university.edu

MATHEMATICAL RESEARCH SECTION, SCHOOL OF MATHEMATICAL SCIENCES, AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA ACT 2601, AUSTRALIA

*E-mail address:* two@maths.univ.edu.au