

Instructions for Authors of the Journal of Inverse and Ill-Posed Problems

Name of 1st Author and Name of 2nd Author

Communicated by Name of Editor

Abstract. Please provide an abstract. It should be self-contained, thus don't use references to the list of bibliography, and do not refer to specific theorems in the paper. This is important since after publication, abstracts will also be published online independently from the corresponding papers.

Key words. Key words; Example.

AMS classification. 00X00, 00Y00.

1. Introduction

These are instructions for authors to prepare a manuscript for proceedings published by the publishing house de Gruyter GmbH & Co. KG, Berlin/New York. Go to the subdirectory `template` and edit the file `main.tex`. This is the only file that has to be modified by authors.

2. General information on the paper to be provided in the preamble of your document

The following commands have to be used in the preamble, i.e., they are to be placed before `\begin{document}`.

- Please provide author information by using the commands `\authorx`, `\addressx`, `\countryx` and, if necessary, `\thanksx`. Here `x` can be one, two, three, or four. By using the command `\headlineauthor`, you may generate a short version for author names in headlines.
- Please provide an abstract by the command `\abstract`. It should be as brief as possible, and number of formulas used in their should be kept to a minimum.
- Please provide keywords by the command `\keywords`. The first word should be capitalized, others not except for namesxxxx. In addition, please provide an AMS 2000 classification by the command `\classification`. Both keywords and classification numbers should be end up without full stop.
- If you want to include acknowledgments, please do this by using the command `\acknowledgments`. They in fact are printed at the end of your paper.

First author: Support of 1st author (optional).

Second author: Support of 2nd author (optional).

3. Your contribution

In order to include your manuscript, you can make use of the `\input` command in the file `main.tex`, for example.

3.1. Organizing your manuscript

You may use sections, subsections and subsubsections. In their titles, capitalize only the first word as well as names. Use blank lines only if you want to start a new paragraph. Do not blank lines otherwise since the subsequent line is indented.

Footnotes should be as brief as possible, and their number should be kept to a minimum. Equations are numbered as (1.1), (1.2), ..., (2.1) etc., e.g.,

$$1 + 1 = 2. \tag{3.1}$$

In a definition, use italic fonts for the phrases to be defined.

Definition 3.1. An X satisfying Y is called *something*.

Remark 3.2. In addition to the `definition` environment, several further environments for structuring the exposition are provided and can be accessed through commands like `\begin{algorithm}... \end{algorithm}`. The following environments are available:

- Algorithm, Assumption, Example, Remark and Proof, with the corresponding text bodies typeset in roman, respectively.
- Corollary, Lemma, Proposition and Theorem, with the corresponding text bodies typeset in italic, respectively.

Please use always labels when referring to environments. For proofs of statements provided in environments, use the `\begin{proof}... \end{proof}` environment.

Theorem 3.3. *Every day I am proving a theorem.*

Proof. Is trivial. □

3.2. Figures

Eps files may be included in the form¹

```
\begin{figure}[h]
  \centerline{\psfig{figure=figure1.eps,width=7cm} }
  \caption{\label{zzz}
    Text following the figure ...
  }
\end{figure}
```

Caption of figures and tables should be as brief as possible.

¹There are also options.

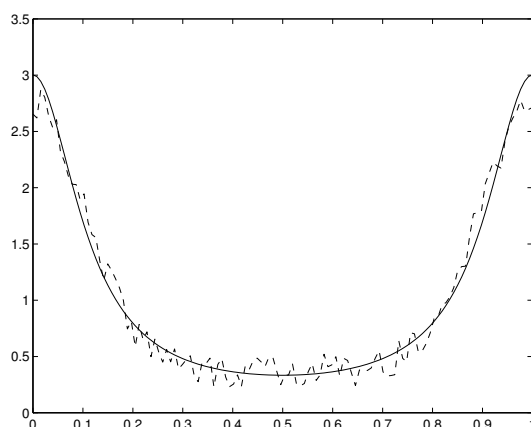


Figure 1. Text following the figure ...

4. Bibliography

For `BIBTEX` users, a style file `wdg_proceedings.bst` is provided. You have to add your databases in the command `\bibliography{}`. Running

```
latex main, bibtex main, latex main, latex main
```

will provide a file `main.dvi`. (In case you are using references within the bibliography, further executions of `bibtex main` and `latex main` may become necessary.)

Here are the entries from the sample database `.bib` in the sample directory.

```
@book{Engl_Hanke_Neubauer[00],
AUTHOR = { H.~W.~Engl and M.~Hanke and A.~Neubauer },
YEAR = {2000},
TITLE = { Regularization of Inverse Problems },
PUBLISHER = {Kluwer},
ADDRESS = {Dordrecht},
EDITION = {2nd}}

@article{Ashby_Manteuffel_Saylor[90],
AUTHOR = { S.~F.~Ashby and T.~A.~Manteuffel and P.~Saylor},
YEAR = {1990},
TITLE = { A taxonomy for conjugate gradient methods },
JOURNAL = { SIAM J.~Numer.~Anal.},
VOLUME = { 27 },
NUMBER = { 6 },
PAGES = { 1542-1568 }}

@inproceedings{Freund_Golub_Nachtigal[91],
AUTHOR = { R.~W.~Freund and G.~H.~Golub and N.~M.~Nachtigal },
YEAR = {1991},
TITLE = { Iterative solution of linear systems },
BOOKTITLE = { Acta Numerica },
```

```
PUBLISHER = {Cambridge Univ.~Press},
ADDRESS = {Cambridge},
PAGES = { 1-44 }}
```

```
@article{Kammerer_Nashed[72],
AUTHOR = { W.~J.~Kammerer and M.~Z.~Nashed},
YEAR = {1972},
TITLE = { On the convergence of the
conjugate gradient method for singular linear operator equations },
JOURNAL = { SIAM J.~Numer.~Anal. },
VOLUME = {9},
NUMBER = {1},
PAGES = {165-181}}
```

```
@book{Vainikko_Veretennikov[86],
AUTHOR = { G.~M.~Vainikko and A.~Yu.~Veretennikov },
YEAR = {1986},
TITLE = { Iteration Procedures
in Ill-Posed Problems \textup{(in Russian)}},
PUBLISHER = {Nauka},
ADDRESS = {Moscow}}
```

```
@article{Eicke_Louis_Plato[90],
AUTHOR = { B.~Eicke and A.~K.~Louis and R.~Plato },
YEAR = {1990},
TITLE = { The instability of some
gradient methods for ill-posed problems},
JOURNAL = { Numer. Math. },
VOLUME = {58},
NUMBER = {1},
PAGES = {129-134}}
```

```
@inproceedings{Brakhage[87],
AUTHOR = { H. Brakhage },
YEAR = {1987},
TITLE = { On ill-posed problems and the method of conjugate gradients },
BOOKTITLE = { Inverse and Ill-Posed Problems, Proc. St. Wolfgang 1986 },
EDITOR = {H.~W.~Engl and C.~W.~Groetsch },
PUBLISHER = {Academic Press},
ADDRESS = {Boston},
PAGES = {165-175}}
```

```
@article{Nemirovskii_Polyak[84.1],
AUTHOR = {A.~S.~Nemirovski\~u{i} and B.~T.~Polyak },
YEAR = {1984},
TITLE = {Iterative methods for
solving linear ill-posed problems under precise information I },
JOURNAL = { Moscow Univ. Comput. Math. Cybern. },
VOLUME = {22},
NUMBER = {3},
PAGES = {1-11}}
```

```
@inproceedings{Louis[87],
AUTHOR = { A.~K. Louis },
YEAR = {1987},
TITLE = { Convergence of the conjugate gradient method
for compact operators },
BOOKTITLE = { Inverse and Ill-Posed Problems, Proc. St. Wolfgang 1986 },
```

```
EDITOR = {H.~W.~Engl and C.~W.~Groetsch},
PUBLISHER = {Academic Press},
ADDRESS = {Boston},
PAGES = {177-183}}
```

```
@book{Fattorini[83],
AUTHOR = {H.~O. Fattorini},
YEAR = {1983},
TITLE = { The Cauchy Problem },
PUBLISHER = {Addison-Wesley},
ADDRESS = {Reading}}
```

```
@book{Hanke[95.1],
AUTHOR = { M. Hanke },
YEAR = {1995},
TITLE = { Conjugate Gradient Type Methods for Ill-Posed Problems },
PUBLISHER = {Longman House},
ADDRESS = {Harlow}}
```

```
@article{Hanke[96.2],
AUTHOR = { M. Hanke },
YEAR = {1996},
TITLE = { Asymptotics of orthogonal polynomials
and the numerical solution of ill-posed problems },
JOURNAL = {Numer. Algor.},
VOLUME = {11},
NUMBER = {1-4},
PAGES = {203-214}}
```

If you generate a bibliography without using **BIBTEX**, please use the same style as presented in these author instructions.

Acknowledgments. I would like to thank X, Y and Z for their valuable comments on earlier drafts of this paper.

References

1. S. F. Ashby, T. A. Manteuffel, and P. Saylor, A taxonomy for conjugate gradient methods. *SIAM J. Numer. Anal.* **27** (1990), 1542–1568.
2. B. Eicke, A. K. Louis, and R. Plato, The instability of some gradient methods for ill-posed problems. *Numer. Math.* **58** (1990), 129–134.
3. H. W. Engl, M. Hanke, and A. Neubauer, *Regularization of Inverse Problems*, 2nd. ed. Kluwer, Dordrecht, 2000.
4. H. O. Fattorini, *The Cauchy Problem*. Addison-Wesley, Reading, 1983.
5. R. W. Freund, G. H. Golub, and N. M. Nachtigal, *Iterative solution of linear systems*. Acta Numerica, 1–44. Cambridge Univ. Press, Cambridge, 1991.
6. M. Hanke, *Conjugate Gradient Type Methods for Ill-Posed Problems*. Longman House, Harlow, 1995.
7. ———, Asymptotics of orthogonal polynomials and the numerical solution of ill-posed problems. *Numer. Algor.* **11** (1996), 203–214.

8. W. J. Kammerer and M. Z. Nashed, On the convergence of the conjugate gradient method for singular linear operator equations. *SIAM J. Numer. Anal.* **9** (1972), 165–181.
9. A. K. Louis, *Convergence of the conjugate gradient method for compact operators*. Inverse and Ill-Posed Problems, Proc. St. Wolfgang 1986 (H. W. Engl and C. W. Groetsch, eds.), 177–183. Academic Press, Boston, 1987.
10. A. S. Nemirovskii and B. T. Polyak, Iterative methods for solving linear ill-posed problems under precise information I. *Moscow Univ. Comput. Math. Cybern.* **22** (1984), 1–11.
11. G. M. Vainikko and A. Yu. Veretennikov, *Iteration Procedures in Ill-Posed Problems* (in Russian). Nauka, Moscow, 1986.

Received 12 April, 2007; revised 13 July, 2007

Author information

Name of 1st Author, Walter de Gruyter, Berlin/New York, Germany/USA.

Email: author1@affiliati.on1

Name of 2nd Author, affiliation and address of 2nd author, country of 2nd author.

Email: author2@affiliati.on2