

JOURNAL OF NUMERICAL MATHEMATICS

EDITORS-IN-CHIEF

Ronald Hoppe, Augsburg/Houston

Yuri A. Kuznetsov, Houston

MANAGING EDITOR

Maxim Olshanskii, Houston

EDITORIAL ADVISORY BOARD

Michele Benzi, Atlanta

Andrea Bonito, College Station

Susanne Brenner, Baton Rouge

Carsten Carstensen, Berlin

Miloslav Feistauer, Prague

Johnny Guzman, Providence

Frédéric Nataf, Paris

Pekka Neittaanmäki, Jyväskylä

Alfio Quarteroni, Lausanne

Rolf Rannacher, Heidelberg

Sergey Repin, St. Petersburg

Arnold Reusken, Aachen

Valeria Simoncini, Bologna

Eugene Tyrtshnikov, Moscow

Jun Zou, Hong Kong

HONORARY MEMBERS

Roland Glowinski, Houston

Raycho Lazarov, College Station

Zhong-ci Shi, Beijing

DE GRUYTER

JOURNAL OF NUMERICAL MATHEMATICS is a journal devoted to the publication of high quality papers featuring contemporary research in all areas of Numerical Mathematics. This includes the development, analysis and implementation of new and innovative methods in Numerical Linear Algebra, Numerical Analysis, Optimal Control/Optimization, and Scientific Computing. The journal will also publish applications-oriented papers related to problems in engineering, finance, and life sciences.

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at www.degruyter.com/jnum.

ABSTRACTED/INDEXED IN Baidu Scholar · Cabell's Whitelist · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC: cnpLINKer · DBLP Computer Science Bibliography · Dimensions · EBSCO (relevant databases) · EBSCO Discovery Service · Engineering Village · Gale/Cengage · Genamics JournalSeek · Google Scholar · Japan Science and Technology Agency (JST) · J-Gate · Journal Citation Reports/Science Edition · JournalGuide · JournalTOCs · KESLI-NDSL (Korean National Discovery for Science Leaders) · Mathematical Reviews (MathSciNet) · Microsoft Academic · MyScienceWork · Naver Academic · Naviga (Softweco) · Primo Central (ExLibris) · ProQuest (relevant databases) · Publons · QOAM (Quality Open Access Market) · ReadCube · SCImago (SJR) · SCOPUS · Semantic Scholar · Sherpa/RoMEO · Summon (ProQuest) · TDNet · Ulrich's Periodicals Directory/ulrichsweb · WanFang Data · Web of Science: Current Contents/Physical, Chemical and Earth Sciences; Science Citation Index Expanded · WorldCat (OCLC) · Zentralblatt Math (zbMATH).

ISSN 1570-2820 · e-ISSN 1569-3953 · CODEN JNMOAM

RESPONSIBLE EDITOR Ronald Hoppe, Institute of Mathematics, University of Augsburg, Universitätsstr. 14, 86159 Augsburg, Germany.
E-Mail: hoppe@math.uni-augsburg.de

Yuri A. Kuznetsov, Department of Mathematics, University of Houston, Houston, TX 77204-3008, USA.
E-Mail: kuz@math.uh.edu

JOURNAL MANAGER Juliane Herzer, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany,
Tel.: +49 (0)30 260 05 283, Fax: +49 (0)30 260 05 250, E-Mail: denis.fracalossi@degruyter.com

RESPONSIBLE FOR ADVERTISEMENTS Claudia Neumann, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany.
Tel.: +49 (0)30.260 05 226, Fax: +49 (0) 30.260 05 264, E-Mail: anzeigen@degruyter.com

© 2020 Walter de Gruyter GmbH, Berlin/Boston

PRINTING Franz X. Stücker Druck und Verlag e.K., Ettenheim, Germany



Offenlegung der Inhaber und Beteiligungsverhältnisse gem. § 7a Abs. 1 Ziff. 1, Abs. 2 Ziff. 3 des Berliner Pressegesetzes: Die Gesellschafter der Walter de Gruyter GmbH sind: Cram, Gisela, Rentnerin, Berlin; Cram, Elsbeth, Pensionärin, Rosengarten-Alvesen; Cram, Dr. Georg-Martin, Unternehmens-Systemberater, Stadtbergen; Cram, Maike, Wien (Österreich); Cram, Jens, Mannheim; Cram, Ingrid, Betriebsleiterin, Tuxpan/Michoacan (Mexiko); Cram, Sabina, Mexico DF (Mexiko); Cram, Silke, Wissenschaftlerin, Mexico DF (Mexiko); Cram, Björn, Aachen; Cram, Berit, Hamm; Cram-Gomez, Susana, Mexico DF (Mexiko); Cram-Heydrich, Walter, Mexico DF (Mexiko); Cram-Heydrich, Kurt, Angestellter, Mexico DF (Mexiko); Duvenbeck, Brigitta, Oberstudienrätin i.R., Bad Homburg; Gädeke, Gudula, M.A., Atemtherapeutin/Lehrerin, Tübingen; Gädeke, Martin, Student, Ingolstadt; Gomez Cram, Arturo Walter, Global Key Account Manager, Bonn; Gomez Cram, Ingrid Arlene, Studentin, Mexico DF (Mexiko); Gomez Cram, Robert, Assistant Professor, London UK; Lubasch, Dr. Annette, Ärztin, Berlin; Schütz, Dr. Christa, Ärztin, Mannheim; Schütz, Sonja, Diplom.-Betriebswirtin (FH), Berlin; Schütz, Juliane, Berlin; Schütz, Antje, Berlin; Schütz, Valentin, Mannheim; Seils, Dorothee, Apothekerin, Stuttgart; Seils, Gabriele, Journalistin, Berlin; Seils, Christoph, Journalist, Berlin; Siebert, John-Walter, Pfarrer, Oberstenfeld; Anh Vinh Alwin Tran, Zürich (Schweiz); Tran, Renate, Mediatorin, Zürich (Schweiz).

Contents

Kirill V. Demyanko, Igor E. Kaporin, and Yuri M. Nechepurenko

Inexact Newton method for the solution of eigenproblems arising in hydrodynamic temporal stability analysis — 1

Silvia Gazzola and Paolo Novati

Some transpose-free CG-like solvers for nonsymmetric ill-posed problems — 15

Cheng Liao, Pengzhan Huang, and Yinnian He

A decoupled finite element method with different time steps for the nonstationary Darcy–Brinkman problem — 33