



COMPUTATIONAL AND THEORETICAL STUDIES OF FREE BOUNDARY PROBLEMS AND THEIR APPLICATIONS

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DESCRIPTION

The theory of free boundary problems has undergone a remarkable development in both pure and applied mathematics, as well as in mechanics, engineering sciences and economics. This theory has been a key feature in the understanding and solution of many practical problems, such as market price equilibria, heat control, and elastic contact, to name a few. Free boundary problems have been the object of an intensive study during the last three decades. However, there is much to do on the numerical analysis side, especially in error estimation, asymptotic behavior, and posteriori error estimation, for both stationary and evolutionary free boundary problems, using different numerical analysis methods such as the Schwarz alternating method and the Galerkin methods (including finite elements and spectral methods). Research in the fascinating area of free boundary problems includes stationary and evolutionary variational, and quasi-variational, inequalities, as well as Hamilton-Jacobi-Bellman equations. The development of the theory of free boundary problems has almost exploded in recent years, and a large number of articles and monographs have been published, including many amazing applications and new contributions. The main aim of this special issue is to present new results and recent advances within this fascinating area. This special issue in *Demonstratio Mathematica* will consider strictly strong papers resulting from both theoretical and computational views of a free boundary problems which include the stationary and evolutionary variational, and quasi-variational, inequalities, as well as Hamilton-Jacobi-Bellman equations.

We also encourage young, well supervised and guided PhD students, who got new contributions, to submit their contributions to this special issue. Please note that submitted papers should be explicitly meeting with the Aims and Scope of the Journal.

Contributions to the Special Issue may address (but are not limited) to the following aspects:

- ▶ Computational methods for elliptic variational or quasi-variational inequalities
- ▶ Computational methods for parabolic variational or quasi-variational inequalities
- ▶ Applications of Hamilton-Jacobi-Bellman equations, which are approximated by a weakly coupled system of variational or quasi-variational inequalities, in science, economics and engineering
- ▶ Convergence of new proposed iterative schemes and applications
- ▶ Applications of variational or quasi-variational inequalities in stochastic analysis and applications
- ▶ Applications of ODEs and PDEs in science, economics and engineering
- ▶ Applications of ODEs and PDEs in robotics and automatic control

Authors are requested to submit their full revised papers complying the general scope of the journal. The submitted papers will undergo the standard peer-review process before they can be accepted. Notification of acceptance will be communicated as we progress with the review process.

HOW TO SUBMIT

Before submission authors should carefully read the Instruction for Authors, available online at: www.degruyter.com/publication/journal_key/DEMA/downloadAsset/DEMA_Instruction_for_Authors.pdf.

Manuscripts can be written in TeX, LaTeX (strongly recommended) - the journal's [LATEX template](#). Please note that we do not accept papers in Plain TEX format. Text files can be also submitted as standard DOCUMENT (.DOC) which is acceptable if the submission in LATEX is not possible. **For an initial submission, the authors are strongly advised to upload their entire manuscript, including tables and figures, as a single PDF file.**

All submissions to the Special Issue must be made electronically via online submission system Editorial Manager: www.editorialmanager.com/dema.

All manuscripts will undergo the standard peer-review process (single blind, at least two independent reviewers). When entering your submission via online submission system please choose the option "*Special Issue on Computational and Theoretical Studies of free Boundary Problems and their Applications*".

Submission of a manuscript implies that the work described has not been published before and it is not under consideration for publication anywhere else.

The deadline for submissions is 30th June 2021, but individual papers will be reviewed and published online on an ongoing basis.

Article publication charge (APC): all authors contributing to this Special Issue will be offered 50% DISCOUNT.

Contributors to the Special Issue will benefit from:

- ▶ critical peer-review
- ▶ no space constraints
- ▶ quick online publication upon completing the publishing process (**continuous publication model**)
- ▶ content converting to xml
- ▶ better visibility due to **Open Access** - free, unrestricted and permanent access to all the content
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We are looking forward to your submission!

In case of any questions please contact:

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