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## Table of contents

<table>
<thead>
<tr>
<th>Journal Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebraic Geometry (AG)</td>
<td>4</td>
</tr>
<tr>
<td>Annales de l’Institut Henri Poincaré D (AIHPD)</td>
<td>5</td>
</tr>
<tr>
<td>Commentarii Mathematici Helvetici (CMH)</td>
<td>6</td>
</tr>
<tr>
<td>Elemente der Mathematik</td>
<td>7</td>
</tr>
<tr>
<td>EMS Surveys in Mathematical Sciences (EMSS)</td>
<td>8</td>
</tr>
<tr>
<td>Groups, Geometry, and Dynamics (GGD)</td>
<td>9</td>
</tr>
<tr>
<td>Interfaces and Free Boundaries (IFB)</td>
<td>10</td>
</tr>
<tr>
<td>Journal of Combinatorial Algebra (JCA)</td>
<td>11</td>
</tr>
<tr>
<td>Journal of the European Mathematical Society (JEMS)</td>
<td>12</td>
</tr>
<tr>
<td>Journal of Fractal Geometry (JFG)</td>
<td>13</td>
</tr>
<tr>
<td>Journal of Noncommutative Geometry (JNCG)</td>
<td>14</td>
</tr>
<tr>
<td>Journal of Spectral Theory (JST)</td>
<td>15</td>
</tr>
<tr>
<td>L’Enseignement Mathématique (LEM)</td>
<td>16</td>
</tr>
<tr>
<td>Mathematical Statistics and Learning (MSL)</td>
<td>17</td>
</tr>
<tr>
<td>Oberwolfach Reports (OWR)</td>
<td>18</td>
</tr>
<tr>
<td>Portugaliae Mathematica (PM)</td>
<td>19</td>
</tr>
<tr>
<td>Publications of the Research Institute for Mathematical Sciences (PRIMS)</td>
<td>20</td>
</tr>
<tr>
<td>Quantum Topology (QT)</td>
<td>21</td>
</tr>
<tr>
<td>Atti della Accademia Nazionale dei Lincei, Rendiconti Lincei – Matematica e Applicazioni (RLM)</td>
<td>22</td>
</tr>
<tr>
<td>Rendiconti del Seminario Matematico della Università di Padova (RSMUP)</td>
<td>23</td>
</tr>
<tr>
<td>Revista Matemática Iberoamericana (RMI)</td>
<td>24</td>
</tr>
<tr>
<td>Zeitschrift für Analysis und ihre Anwendungen (ZAA)</td>
<td>25</td>
</tr>
<tr>
<td>Newsletter of the European Mathematical Society</td>
<td>26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Journal Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra &amp; Number Theory (ANT)</td>
<td>27</td>
</tr>
<tr>
<td>Algebra &amp; Geometric Topology (AGT)</td>
<td>28</td>
</tr>
<tr>
<td>Analysis &amp; PDE (APDE)</td>
<td>29</td>
</tr>
<tr>
<td>Annals of K-Theory (AKT)</td>
<td>30</td>
</tr>
<tr>
<td>Communications in Applied Mathematics and Computational Science (CAMCoS)</td>
<td>31</td>
</tr>
<tr>
<td>Geometry &amp; Topology (GT)</td>
<td>32</td>
</tr>
<tr>
<td>Innovations in Incidence Geometry: Algebraic, Topological and Combinatorial (IIG)</td>
<td>33</td>
</tr>
<tr>
<td>Involve, a Journal of Mathematics</td>
<td>34</td>
</tr>
<tr>
<td>Moscow Journal of Combinatorics and Number Theory (MJCNT)</td>
<td>35</td>
</tr>
<tr>
<td>Pure and Applied Analysis (PAA)</td>
<td>36</td>
</tr>
<tr>
<td>Tunisian Journal of Mathematics (TJM)</td>
<td>37</td>
</tr>
</tbody>
</table>

**Discount Packages** | 38 |

**EMS e-book licence** | 39 |
**The European Mathematical Society** | 40 |
Algebraic Geometry (AG)

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Aims and Scope
Algebraic Geometry is an open access journal owned by the Foundation Compositio Mathematica. The purpose of the journal is to publish first-class research papers in algebraic geometry and related fields. All contributions are required to meet high standards of quality and originality and are carefully screened by experts in the field. Open access implies here that the electronic version of the journal is freely accessible and that there are no article processing charges for authors whatsoever. The printed version of the journal will appear at the end of the calendar year and comprise the entire volume in one hard cover tome.

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The unfolding of new ideas in physics is often tied to the development of new combinatorial methods, and conversely some problems in combinatorics have been successfully attacked using methods inspired by statistical physics or quantum field theory.

The journal is dedicated to publishing high-quality original research articles and survey articles in which combinatorics and physics interact in both directions. Combinatorial papers should be motivated by potential applications to physical phenomena or models, while physics papers should contain some interesting combinatorial development.

Both rigorous mathematical proof and heuristic physical reasoning have a place in this journal, but each must be clearly labeled. Definitions and proofs should be presented with the precision and rigor that are expected in a mathematics journal. Conjectures based on heuristic physical arguments and/or numerical evidence are warmly encouraged, but they should be clearly labeled as such and should be stated as precisely as possible.

The list of specific subject areas in which articles are anticipated includes:

- Combinatorics of renormalization; combinatorics of cluster, virial and related expansions; discrete geometry and combinatorics of quantum gravity; graph polynomials and statistical-mechanics models; topological graph polynomials and quantum field theory; physical applications of combinatorial Hopf algebras, matroids, combinatorial species, and other combinatorial structures; exact solutions of statistical-mechanical models; combinatorics and algebra of integrable systems; computational complexity and its relation with statistical physics; computational/algorhithmic aspects of combinatorial physics; interactions of combinatorial physics with topology, geometry, probability theory, or computer science.

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The journal is intended for the publication of original research articles on all aspects in mathematics.

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**Aims and Scope**

*Elemente der Mathematik* publishes survey articles about important developments in the field of mathematics; stimulating shorter communications that tackle more specialized questions; and papers that report on the latest advances in mathematics and applications in other disciplines. The journal does not focus on basic research. Rather, its articles seek to convey to a wide circle of readers (teachers, students, engineers, professionals in industry and administration) the relevance, intellectual challenge and vitality of mathematics today. The Problems Section, covering a diverse range of exercises of varying degrees of difficulty, encourages an active grappling with mathematical problems. The journal’s books and software reviews are additional features that serve to keep readers attuned to what is new and exciting on all mathematical fronts.

The publication language is primarily German, but many articles are in English, French or Italian.

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The EMS Surveys in Mathematical Sciences is dedicated to publishing authoritative surveys and high-level expositions in all areas of mathematical sciences. It is a peer-reviewed periodical which communicates advances of mathematical knowledge to give rise to greater progress and cross-fertilization of ideas. Surveys should be written in a style accessible to a broad audience, and might include ideas on conceivable applications or conceptual problems posed by the contents of the survey.

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Topics covered include: geometric group theory; asymptotic group theory; combinatorial group theory; probabilities on groups; computational aspects and complexity; harmonic and functional analysis on groups, free probability; ergodic theory of group actions; cohomology of groups and exotic cohomologies; groups and low-dimensional topology; group actions on trees, buildings, rooted trees.

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Interfaces and Free Boundaries is dedicated to the mathematical modelling, analysis and computation of interfaces and free boundary problems in all areas where such phenomena are pertinent. The journal aims to be a forum where mathematical analysis, partial differential equations, modelling, scientific computing and the various applications which involve mathematical modelling meet. Submissions should, ideally, emphasize the combination of theory and application.

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The *Journal of Fractal Geometry* is dedicated to publishing high quality contributions to fractal geometry and related subjects, or to mathematics in areas where fractal properties play an important role.

The *Journal of Fractal Geometry* accepts submissions containing original research articles and short communications. Occasionally research expository or survey articles will also be published. Only contributions representing substantial advances in the field will be considered for publication. Surveys and expository papers, as well as papers dealing with the applications to other sciences or with experimental mathematics, may be considered, especially when they contain significant mathematical content or value and suggest interesting new research directions through conjectures or the discussion of open problems.

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The *Journal of Noncommutative Geometry* covers the noncommutative world in all its aspects. It is devoted to publication of research articles which represent major advances in the area of noncommutative geometry and its applications to other fields of mathematics and theoretical physics.

Topics covered include in particular: Hochschild and cyclic cohomology; K-theory and index theory; measure theory and topology of noncommutative spaces, operator algebras; spectral geometry of noncommutative spaces; noncommutative algebraic geometry; Hopf algebras and quantum groups; foliations, groupoids, stacks, gerbes; deformations and quantization; noncommutative spaces in number theory and arithmetic geometry; noncommutative geometry in physics: QFT, renormalization, gauge theory, string theory, gravity, mirror symmetry, solid state physics, statistical mechanics.

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Aims and Scope
The *Journal of Spectral Theory* is devoted to the publication of research articles that focus on spectral theory and its many areas of application. Articles of all lengths including surveys of parts of the subject are very welcome.

The following list includes several aspects of spectral theory and also fields which feature substantial applications of (or to) spectral theory.

- Schrödinger operators, scattering theory and resonances;
- eigenvalues: perturbation theory, asymptotics and inequalities;
- quantum graphs, graph Laplacians;
- pseudo-differential operators and semi-classical analysis;
- random matrix theory;
- the Anderson model and other random media;
- non-self-adjoint matrices and operators, including Toeplitz operators;
- spectral geometry, including manifolds and automorphic forms;
- linear and nonlinear differential operators, especially those arising in geometry and physics;
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The journal *L'Enseignement Mathématique* was founded in 1899 by Henri Fehr (Geneva) and Charles-Ange Laisant (Paris). It is intended primarily for publication of high-quality research and expository papers in mathematics. Approximately 60 pages each year will be devoted to book reviews.

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Naturally, coincidence also plays a big role. Improving the chances for progress by coincidence is one of the main purposes of the research at the Oberwolfach Institute. When getting to know the background of an important result during a talk, one can suddenly have a bright idea, perhaps leading to a considerable progress in one’s own research activity. Within discussions in small groups, when presenting fresh thoughts, one sometimes can find the right direction for further work with the help of the comments of colleagues. Often it also happens that two or three colleagues, during discussions, become aware that they, though coming from different backgrounds and with different motivations, are interested in similar problems and decide to unify their potential in order to establish a common research project.

All this happens nearly daily at these workshops. A great number of important papers have been initiated at Oberwolfach in this manner. Contrary to the typically large conferences all over the world, workshops at Oberwolfach emphasize active research.

The Oberwolfach Reports are meant to capture, in an informal manner, the characteristic ideas and discussions of these workshops. As a service to the community, they are now offered by the Institute, at a nominal price, and allow the public to partake in the lively and stimulating atmosphere of these meetings. While the peer-reviewed results will appear elsewhere, the Oberwolfach Reports will keep the reader abreast of current developments and open problems, and serve as an indispensable source of information for the active mathematician.

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Quantum Topology (QT)

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Aims and Scope
Quantum Topology is dedicated to publishing original research articles, short communications, and surveys in quantum topology and related areas of mathematics. Topics covered include in particular:

- low-dimensional topology;
- knot theory;
- Jones polynomial and Khovanov homology;
- topological quantum field theory;
- quantum groups and Hopf algebras;
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The academy began publishing in 1873 with the Atti della Reale Accademia dei Lincei, Transunti. Continued in 1884 as Atti della Reale Accademia dei Lincei, Rendiconti and under the present name in 1990, the Rendiconti Lincei have been one of the best Italian journals ever since. Papers by the most outstanding Italian mathematicians such as Betti, Bianchi, Caccioppoli, Castelnuovo, Enriques, Levi-Civita, Picone, Tonelli, Volterra and, more recently, Andreotti, Fichera, De Giorgi, Segre, Severi and Stampacchia have been published.

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The Rendiconti del Seminario Matematico della Università di Padova have been published by the Seminario Matematico of the University of Padua since 1930. The aim of Rendiconti is to publish original high-quality research articles in mathematics. By tradition the journal focuses on algebra, analysis, algebraic and differential geometry, mathematical physics and number theory. The journal is ready to accept long papers of foundational or technical nature, as well as papers containing applications or surveys, provided these are especially well structured and fill a gap in the literature.

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Aims and Scope
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Aims and Scope
The Journal for Analysis and its Applications aims at disseminating theoretical knowledge in the field of analysis and, at the same time, cultivating and extending its applications. To these ends, it publishes research articles on differential equations, functional analysis and operator theory, notably with applications to continuum mechanics or other disciplines of the exact sciences.

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The EMS Newsletter is first of all a membership bonus for the individual members of the society. For membership information, see page 67 or consult the homepage of the European Mathematical Society at www.euro-math-soc.eu.

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Aims and Scope
Algebra & Number Theory's broad definition of algebra and number theory allows it to print high-quality research covering a wide range of subtopics, including algebraic and arithmetic geometry. ANT publishes high-quality articles of interest to a broad readership, at a level surpassing all but the top four or five mathematics journals.

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