

## Journal Description Arnold Mathematical Journal

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You see the first issue of the Arnold Mathematical Journal (ArMJ). The name of the journal is not only a dedication to the memory of Vladimir Igorevich Arnold (1937–2010), one of the most influential mathematicians of the twentieth century, but also a declaration that the journal should serve to maintain and promote the scientific style characteristic for Arnold’s best mathematical works. This journal presents interdisciplinary results in mathematics, in a style that is understandable and always interesting. Articles use formal and informal approaches to important mathematical concepts, aiming to “unhide” the process of mathematical discovery.

The ArMJ is organized jointly by the Institute for Mathematical Sciences (IMS) at Stony Brook, USA, and Springer Verlag, Germany.

### 1 Objectives

The journal will publish interesting and understandable results in all areas of Mathematics. The following are the most desirable features of the AMJ publications, which serve as selection criteria:

*Popularity* The journal articles should be accessible to a very wide community of mathematicians. Not only formal definitions necessary for the understanding must be provided but also informal motivations even if the latter are well-known to the experts in the field. If a general statement is given, then the simplest examples of it are also welcome.

*Interdisciplinary and multidisciplinary mathematics* We would like to have many research expositions that connect different mathematical subjects. Connections that are useful in both ways are of particular importance. Multidisciplinary research (even if the disciplines all belong to pure mathematics) is generally hard to evaluate, except for the most popular combinations such as algebraic geometry and mathematical physics, analysis and dynamical systems, algebra and combinatorics, and the like. For this reason, this kind of research is often under-represented in specialized mathematical journals. The ArMJ will try to compensate for this.

*Problems, objectives, work in progress* Most scholarly publications present results of a research project in their “final” form, in which all posed questions are answered. Some open questions and conjectures may be even mentioned but the very process of mathematical discovery remains hidden. Following Arnold, we will try to unhide this process and made it public by encouraging the authors to include informal discussion of their motivation, possibly unsuccessful lines of attack, experimental data and close by research directions. The journal intends to publish well-motivated research problems on a rather regular basis. Problems do not need to be original; an old problem with a new and exciting motivation is worth re-stating. Following Arnold’s principle, a general formulation is less desirable than the simplest partial case that is still unknown.

*Being interesting* The most important requirement is that the article be interesting. It does not have to be limited by original research contributions of the author; however, the author’s responsibility is to carefully acknowledge the authorship of all results. Neither does the article need to consist entirely of formal and rigorous arguments. It can contain parts, in which an informal author’s understanding of the overall picture is presented; however, these parts must be clearly indicated. Including motivations, informal parts, descriptions of other lines of research, possibly conducted by other mathematicians, should serve this principal objective: being interesting.

### 1.1 Types of Journal Articles

- *Research contribution* This is the classical format: a short (usually up to 20 pages) account of a research project containing original results and complete proofs of them. However, all of the above applies. Contributions containing very technical arguments may not be suitable for the ArMJ.
- *Research exposition* This is an exposition of a broad mathematical subject containing a description of recent results (proofs may be included or omitted), historical overview, motivations, open problems. A research exposition may take 60 pages or more.
- *Problem contribution* This is a description of an open problem. The problem must be well-motivated, illustrated by examples, and the importance of the problem must be explained. Alternatively, and closer to the original style of Arnold, a problem contribution may consist of a set of several problems that take very short space to state. Problems do not need to be original, however, the authorship must be carefully acknowledged. A problem contribution is meant to be short (normally, up to 4 pages, but exceptions are possible).

### 1.2 Comparison with Existing Journals

The following journals have somewhat similar scientific objectives to those of the ArMJ.

- Functional Analysis and its Applications
- Russian Mathematical Surveys
- American Mathematical Monthly

- Bulletin of the AMS

However, each of these journals complies with only a part of our objectives list.

### 1.3 Why the Name

There are many great mathematicians of the twentieth century. The choice of the name may look random (why not, say, “Gelfand Mathematical Journal”?—we are often asked) but we have very specific reasons for using the name of Vladimir Arnold.

1. The principles, according to which the journal operates, are most accurately associated with Vladimir Arnold. He had been actively promoting these or similar principles.
2. For many years, V. Arnold had been the Editor-in-Chief of the journal *Functional Analysis and its Applications* (FAA). In 2006, V. Arnold launched a new journal, *Functional Analysis and Other Mathematics* (FAOM). The initial composition of the ArMJ Editorial Board consists mostly of former editors of the FAOM.
3. Despite the close connections with the FAA and the FAOM, we decided to avoid mentioning “Functional Analysis” in the name of the journal. These names have appeared historically, and have nothing to do with scientific principles of the journals. More than that, the names are even confusing: not all mathematicians could guess that, say, *Functional Analysis and its Applications* welcomes papers in all areas of mathematics, including algebra and number theory. On the other hand, we wanted to have an indication of these connections in the name of the journal. The name of Vladimir Arnold serves as this indication.

## 2 Submissions

The journal is published quarterly, every issue consists of 100–150 pages. Manuscripts should be submitted online at <http://www.editorialmanager.com/armj/>. Accepted file formats are LaTeX source (preferred) and MS Word.

Submission of a manuscript implies: that the work described has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors, if any, as well as by the responsible authorities—tacitly or explicitly—at the institute where the work has been carried out.

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