

## PREFACE

JIM COYKENDALL AND HAL SCHENCK

The field of commutative algebra is a vast one. Its roots lie in the theory of equations, and this common source is reflected in the interplay between algebraic number theory and algebraic geometry. Over the decades, commutative algebra has branched many times. In the 1950s homological algebra developed and evolved from an important tool in the study of algebra and other fields to a discipline in its own right. Technological advances over the last two decades have spawned the new field of computational commutative algebra, which has in turn led to the use of algebra on a broad range of applied problems. In short, contemporary commutative algebra ranges from very axiomatic topics in the spirit of Emmy Noether to topics with origins in applied fields such as mathematical biology and coding theory. This issue you are holding represents this range: there are papers on combinatorial commutative algebra, multiplicative ideal theory, syzygies and free resolutions, integral closures, and idealizations.

The Journal of Commutative Algebra is a research journal that publishes high quality results in commutative algebra and related fields. This is an ambitious task since commutative algebra is intertwined with many fundamental fields of mathematics. In particular, the melting pot of commutative algebra encompasses topics with ramifications that reach into such diverse fields as abelian groups, combinatorics, module theory, K-theory, homological algebra, and number theory, and this only begins to scratch the surface. It is the aim of this journal to become a major source of dissemination of new and profound research in commutative algebra, and to find a place of common ground for this wide and varied field of research. In pursuit of this goal, the Journal of Commutative Algebra welcomes submissions of original and interesting research articles. JCA aims to publish important articles that are of general interest to the extended commutative algebra community. Expository articles of high quality and broad relevance are also welcome. In particular, we would like to encourage submission of survey articles that discuss outstanding problems in the field and are able to provide historical perspective.

Roughly a decade ago, Ayman Badawi started a journal called the International Journal of Commutative Rings, focused on axiomatic commutative algebra and related fields. A number of fine papers appeared in the journal, but publication ceased due to difficulties with the publisher. The Journal of Commutative Algebra takes up where IJCR left off. However, rather than just providing a venue for papers in axiomatic commutative algebra, JCA publishes papers from the full spectrum of commutative algebra. For example, the current issue includes papers on idealizations of modules, cellular resolutions of Cohen-Macaulay monomial quotient rings, open problems on syzygies and Hilbert functions, and integrally closed rings of polynomials containing  $\mathbb{Z}[X]$ . These papers deal with many important and central problems from the broad spectrum of commutative algebra. The editors wish to thank Professor Badawi for his help in getting this project started.

There are a number of fine journals in the general field of algebra, but none that focus on commutative algebra. We feel that commutative algebra is extremely broad and important enough that there is a strong need to be represented as a separate entity in the mathematics community. With this in mind, we believe we have assembled an outstanding group of editors that represents many diverse areas of commutative algebra.

If there is any way that we can make this journal better serve the commutative algebra community we would welcome your suggestions.

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#### COMMUTATIVE ALGEBRA ON THE WORLD WIDE WEB

The commutative algebra community is very active and maintains a web site devoted to activities and information of this group. Readers are encouraged to check the site regularly at <http://www.commalg.org/>. This site will maintain a link to the Journal of Commutative Algebra home page and will carry news and information about the journal.