

Volume 67  
Number 1  
2024

ISSN 1669-9637  
ISSN-L 0041-6932

**Revista de la**  
**Unión**  
**Matemática**  
**Argentina**

# Contents

Volume 67 | Number 1 | 2024

- 1 Three-dimensional  $C_{12}$ -manifolds. *Gherici Beldjilali*
- 15 On an extension of the Newton polygon test for polynomial reducibility. *Brahim Boudine*
- 27 Summing the largest prime factor over integer sequences. *Jean-Marie De Koninck and Rafael Jakimczuk*
- 37 New classes of statistical manifolds with a complex structure. *Mirjana Miljević*
- 47 Coordinate rings of some  $SL_2$ -character varieties. *Vicente Muñoz and Jesús Martín Ovejero*
- 65 Spectrality of planar Moran–Sierpinski-type measures. *Qian Li and Min-Min Zhang*
- 81 Using digraphs to compute determinant, permanent, and Drazin inverse of circulant matrices with two parameters. *Andrés M. Encinas, Daniel A. Jaume, Cristian Panelo, and Denis E. Videla*
- 107 Existence and multiplicity of solutions for  $p$ -Kirchhoff-type Neumann problems. *Qin Jiang, Sheng Ma, and Daniel Paşa*
- 123 Poincaré duality for Hopf algebroids. *Sophie Chemla*
- 137 Gorenstein properties of split-by-nilpotent extension algebras. *Pamela Suarez*
- 145 Distance Laplacian eigenvalues of graphs, and chromatic and independence number. *Shariefuddin Pirzada and Saleem Khan*
- 161 Limit behaviors for a  $\beta$ -mixing sequence in the St. Petersburg game. *Yu Miao, Qing Yin, and Zhen Wang*
- 173 Trivial extensions of monomial algebras. *María Andrea Gatica, María Valeria Hernández, and María Inés Platzeck*
- 197 On the Eneström–Kakeya theorem and its various forms in the quaternionic setting. *Abdullah Mir*
- 213 On the planarity, genus, and crosscap of the weakly zero-divisor graph of commutative rings. *Nadeem ur Rehman, Mohd Nazim, and Shabir Ahmad Mir*
- 229 Modular automata. *Thomas N. Hibbard, Camilo A. Jadur, and Jorge F. Yazlile*
- 245 The principal small intersection graph of a commutative ring. *Soheila Khojasteh*
- 257 Sequential optimality conditions for optimization problems with additional abstract set constraints. *Nadia Soledad Fazzio, María Daniela Sánchez, and María Laura Schuverdt*
- 281 Properties of the convolution operation in the complexity space and its dual. *José M. Hernández-Morales, Netzahualcóyotl C. Castañeda-Roldán, and Luz C. Álvarez-Marín*
- 301 Primitive decompositions of Dolbeault harmonic forms on compact almost-Kähler manifolds. *Andrea Cattaneo, Nicoletta Tardini, and Adriano Tomassini*
- 317 Cofinite modules and cofiniteness of local cohomology modules. *Alireza Vahidi, Ahmad Khaksari, and Mohammad Shirazipour*
- 327 Lorentz  $C_{12}$ -manifolds. *Adel Delloum and Gherici Beldjilali*
- 339 Two constructions of bialgebroids and their relations. *Yudai Otsuto*

## Editor-in-chief

Alicia Dickenstein  
Universidad de Buenos Aires, Argentina

## Managing editors

Gabriel Acosta  
Universidad de Buenos Aires, Argentina

Claudia Chaio  
Universidad Nacional de Mar del Plata, Argentina

Gladis Pradolini  
Universidad Nacional del Litoral, Argentina

Paulo Tirao  
Universidad Nacional de Córdoba, Argentina

Ignacio Viglizzo  
Universidad Nacional del Sur, Argentina

## Managing production editor

Santiago Capriotti  
Universidad Nacional del Sur, Argentina

## Editors

Pablo Amster  
Universidad de Buenos Aires & IMAS-CONICET, Argentina

Nicolás Andruskiewitsch  
Universidad Nacional de Córdoba, Argentina

Jorge Antezana  
Universidad Nacional de La Plata, Argentina & Universidad Autónoma de Madrid, Spain

Inés Armendáriz  
Universidad de Buenos Aires, Argentina

Graciela Boente Boente  
Universidad de Buenos Aires, Argentina

Flavia Bonomo  
Universidad de Buenos Aires, Argentina

Manuela Busaniche  
Universidad Nacional del Litoral, Argentina

Cinzia Casagrande  
Università di Torino, Italy

Carlos D'Andrea  
Universitat de Barcelona, Spain

Verónica Dimant  
Universidad de San Andrés, Argentina

Marco Farinati  
Universidad de Buenos Aires, Argentina

Anna Fino  
Università di Torino, Italy

István Heckenberger  
Philipps-Universität Marburg, Germany

Gabriela Jeronimo  
Universidad de Buenos Aires, Argentina

Matilde Lalín  
Université de Montréal, Canada

Gabriel Minian  
Universidad de Buenos Aires, Argentina

Ursula Molter  
Universidad de Buenos Aires, Argentina

Virginia Naibo  
Kansas State University, USA

Alejandro Neme  
Universidad Nacional de San Luis & Instituto de Matemática Aplicada San Luis, UNSL-CONICET, Argentina

Alf Onshuus  
Universidad de los Andes, Colombia

Gabriela Ovando  
Universidad Nacional de Rosario, Argentina

Ariel Pacetti  
Universidade de Aveiro, Portugal

Arturo Pianzola  
University of Alberta, Canada and Universidad CAECE, Argentina

Simon Riche  
Université Clermont Auvergne, France

Silvina Riveros  
Universidad Nacional de Córdoba, Argentina

Federico Rodríguez Hertz  
The Pennsylvania State University, USA

Julio Rossi  
Universidad de Buenos Aires, Argentina

Martín Safe  
Universidad Nacional del Sur, Argentina

Pablo Shmerkin  
The University of British Columbia, Canada & Universidad Torcuato Di Tella, Argentina

Luis Silvestre  
The University of Chicago, USA

Jan Felipe van Diejen  
Universidad de Talca, Chile

## Production editors

Fernando J. Gómez  
Instituto de Matemática de Bahía Blanca, Argentina

Juliana Cornago  
Instituto de Matemática de Bahía Blanca, Argentina