



PREFACE:
**SPECIAL ISSUE ON VARIATIONAL, TOPOLOGICAL
AND SET-VALUED METHODS FOR
NONLINEAR DIFFERENTIAL PROBLEMS**

This special issue follows the associated Special Session SS34 with the same name from The 13th AIMS Conference on Dynamical Systems, Differential Equations and Applications in Wilmington, USA (May 31 - June 4, 2023). The focus of this session was the qualitative analysis of nonlinear differential problems. In particular, the main purpose was to give an update on recent developments concerning ordinary and partial differential equations, variational-hemivariational inequalities, difference, and algebraic systems obtained by exploiting different methods of the nonlinear analysis such as critical point theory, fixed point theorems, topological degree, Morse theory, set-valued analysis, and so on.

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In addition, we would like to thank Professor Xiaoying Han and Professor Alain Miranville, Editors-in-Chief of DCDS-S, for their support in carrying out the special issue.

Overall, 16 research papers on recent trends on the qualitative analysis of nonlinear differential problems are included in this special issue:

- [1] E. Amoroso and V. Morabito, [Nonlinear Robin problems with double phase variable exponent operator](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [2] I. Benedetti, F. Fennour and E. Palazzoni, [Parabolic differential inclusions with strongly elliptic differential operators and superlinear growths](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [3] G. Bonanno, B. Di Bella and V. Morabito, [Multiple solutions for fourth-order ordinary differential inclusions](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [4] P. Candito, R. Livrea and L. Sanchez, [Existence and approximation of a solution for a two point nonlinear Dirichlet problem](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [5] S. Carl, [Quasilinear noncoercive bilateral hemivariational inequalities in \$\mathcal{D}^{1,p}\(\mathbb{R}^N\)\$: Existence and compactness results](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [6] X. Chen, N. Costea and S. Zeng, [A generalized penalty method for quasi-variational-hemivariational inequalities](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [7] F. Colasuonno, B. Noris and E. Sovrano, [Continuous dependence for \$p\$ -Laplace equations with varying operators](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [8] Á. Crespo-Blanco, [Monotonicity formulas and \$\(S,+\)\$ -property: Old and new](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [9] S. Frassu and G. Vigliarolo, [Addendum to the paper "Refined criteria toward boundedness in an attraction-repulsion chemotaxis system with nonlinear productions"](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),

- [10] S. Gnanasekaran, A. Columbu, R. Díaz Fuentes and N. Nithyadevi, [Global existence and lower bounds in a class of tumor-immune cell interactions chemotaxis systems](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [11] A. Harrabi, M. K. Hamdani and A. Fiscella, [Multiplicity of solutions for a higher \$m\$ -polyharmonic Kirchhoff type equation on unbounded domains](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [12] E. Ipoacoana and V. Taddei, [On multiplicative time-dependent perturbations of semigroups and cosine families generators](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [13] Y.-H. Kim, C. Y. Park and S. Zeng, [Infinitely many small energy solutions to the \$p\$ -Laplacian problems of Kirchhoff type with Hardy potential](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [14] R. Livrea and B. Vassallo, [Three weak solutions to a periodic boundary Sturm-Liouville problem with discontinuous reaction](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [15] F. Mennuni and A. Salvatore, [Multiple solutions for quasilinear elliptic problems with concave and convex nonlinearities](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),
- [16] N. S. Papageorgiou, J. Zhang and W. Zhang, [Global existence and multiplicity of solutions for nonlinear singular eigenvalue problems](#), *Discrete and Continuous Dynamical Systems-S*, **18** (2025),

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