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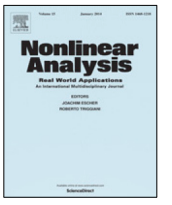

Editorial

# Special issue on the occasion of the 70th birthday of Professor Siegfried Carl

This special issue is dedicated to the 70th birthday of Professor Siegfried Carl to honor his academic career as professor, researcher and editor as well as his outstanding contributions in the field of nonlinear analysis. Professor Carl was born on September 23, 1952 and received his master's degree in mathematics from the University of Halle in 1975. After working in the Academy of Science Institute of Solid State Physics and Electron Microscopy in Halle from 1975 to 1981, he got his PhD and Habilitation degrees in 1984 and 1990 from the Universities of Halle and Merseburg, respectively. Professor Carl was working as a full professor at the Department of Mathematics at the University of Halle from 1994 until his retirement 2019. He has published more than 150 articles in international journals and four research monographs about topics in nonlinear analysis. Professor Carl's research interests cover a large class of nonsmooth variational problems (variational and hemivariational inequalities), nonlinear elliptic and parabolic differential equations/inclusions, comparison principles as well as nonlinear eigenvalue problems. Furthermore, he was an Associate Editor in the journals Applicable Analysis (since 2001), Journal of Inequalities and Application (2003–2011), Nonlinear Analysis: Real World Applications (2009–2012) and Nonlinear Analysis (2004–2009). From 2009 to 2019 he had been serving as one of the Editors-in-Chief for Nonlinear Analysis and since 2019 he is an Honorary Editor.

We would like to thank all authors for their valuable scientific contributions and all colleagues for their support and cooperation, without which we could not have produced this volume.

In addition, we would like to thank Professor Joachim Escher, Editor-in-Chief of NONRWA, for his support in carrying out the special issue.

Overall, 15 research papers on recent trends in nonlinear analysis are included in this special issue, covering some of Prof. Carl's topics of expertise, such as existence, multiplicity and comparison results for smooth and nonsmooth elliptic/parabolic problems:

[1] E. Amoroso, G. Bonanno, G. D'Aguì, S. Foti, *Multiple solutions for nonlinear Sturm–Liouville differential equations with possibly negative variable coefficients.*

[2] J.L. Buchanan, R.P. Gilbert, *Some remarks on the dynamics of cell membranes.*

[3] A.M. Candela, K. Perera, C. Sportelli, *On a class of supercritical $N$-Laplacian problems.*

[4] D.G. Costa, H. Tehrani, *On heterogeneous radially symmetric semilinear elliptic equations with critical nonlinearities in $\mathbb{R}^2$.*

[5] G.C.G. dos Santos, N. de Assis Lima, R.N. de Lima, *Existence and multiple of solutions for a class integro-differential equations with singular term via variational and Galerkin methods.*

[6] L. Fresse, V.V. Motreanu, *An abstract sub-supersolution method in partially ordered spaces.*

[7] P. Garain, T. Mukherjee, *On an anisotropic double phase problem with singular and sign changing nonlinearity.*

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[8] L. Gasiński, N.S. Papageorgiou, *Double phase logistic equations with superdiffusive reaction.*
[9] U. Guarnotta, S.A. Marano, A. Moussaoui, *Multiple solutions to quasi-linear elliptic Robin systems.*
[10] A. Kristály, I.I. Mezei, K. Szilák, *Elliptic differential inclusions on non-compact Riemannian manifolds.*
[11] P. Le, D.H.T. Le, *Classification of positive solutions to p-Laplace equations with critical Hardy-Sobolev exponent.*
[12] V.K. Le, *On variational inequalities on exterior domains with multivalued convection terms.*
[13] D. Motreanu, E. Tornatore, *Nonhomogeneous degenerate quasilinear problems with convection.*
[14] A. Moussaoui, J. Vélin, *Multiple solutions for quasilinear elliptic systems involving variable exponents.*
[15] N.S. Papageorgiou, A. Scapellato, *Positive and nodal solutions for parametric superlinear weighted $(p, q)$-equations.*

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