University of Birmingham

Dr Sándor Zoltán Németh PhD

Senior Lecturer

School of Mathematics (/schools/mathematics/index.aspx)

Contact details

Telephone +44 (0) 121 414 6404 (tel:+44 121 414 6404)

Email s.nemeth@bham.ac.uk (mailto:s.nemeth@bham.ac.uk)

School of Mathematics
Watson Building
University of Birmingham
Edgbaston
Birmingham
B15 2TT
UK

About

Sándor Zoltán Németh is a Senior Lecturer in Management Mathematics, Theoretical and Computational Optimization Group.

Sándor's recent research areas are Convex Optimisation and Equilibrium Systems. Sándor is particularly interested in applications of nonlinear analysis, topological methods and ordered vector spaces to Equilibrium Systems. Sándor's other main topic of interest is studying and computing the projection onto convex sets and convex cones.

Sándor has published 1 book and over 40 research papers in scientific journals in the fields of Optimisation, Nonlinear Analysis, Multicriteria Decision Problems, Differential Geometry, Linear Algebra, Artificial Intelligence, Fluid Mechanics, Elementary Geometry.

School web page: **web.mat.bham.ac.uk/S.Z.Nemeth (http://web.mat.bham.ac.uk/S.Z.Nemeth)**

Qualifications

Senior Lecturer in Management Mathematics
Theoretical & Computational Optimization Group

- PhD in Mathematics Eötvös Loránd University, Budapest, Hungary 1999
- MSc (a degree equivalent to MSc) in Mathematics, Babeş-Bolyai University 1993

Biography

Sándor Zoltán Németh qualified with a (a degree equivalent to) MSc in Mathematics from the Babes-Bolyai University, Cluj-Napoca, Romania as chief of promotion. He obtained a PhD in Mathematics at the Eötvös Loránd University, Budapest, Hungary.

Sándor has obtained the following Scholarships and Awards:

- 1989: 3rd prize at the university's Olympiad
- 1989: 2nd prize at the university's Scientific Student Conference
- 1992/93: Tempus scholarship, The University of Edinburgh, Scotland, U.K.
- 1995-1998: Scholarship of the Hungarian Ministry of Education
- 1998-2001: Bolyai János fellowship of the Hungarian Academy of Sciences
- 2000: Farkas Gyula prize for Applied Mathematics of the Bolyai János Mathematical Society

Sándor was a Stream Organizer for the Mathematical Programming Stream of the EURO XXI Conference, Reykjavík, Iceland, July 2-5, 2006 and the Mathematical Programming Stream of the EURO XXIV Conference, Lisbon, Portugal, July 11-14, 2010.

One PhD student (Philipp A. Naegele) and two MPhil Students (Angela Montenegro and Shi Li) have graduated successfully under his supervision.

Sándor has published one book and more than 40 research papers in scientific journals of various topics such as Optimisation, Nonlinear Analysis, Multicriteria Decision Problems, Differential Geometry, Linear Algebra, Artificial Intelligence, Fluid Mechanics and Elementary Geometry.

Sándor's Teaching Experience includes:

- 1993/94-1994/95: Classes in Synthetic, Analytic, Projective and Differential Geometry, Babes-Bolyai University, Cluj
- 1997/98: Classes in Descriptive, Absolute and Convex Geometry, Eötvös Loránd University, Budapest
- 1999/00-2000/01: Classes in Multicriteria Decision Software, Budapest University of Economic Sciences
- 2001/02: Lectures in Intelligent Tools, School of Mechanical Engineering, The University of Birmingham
- 2005/06-2006/07: Lectures in Nonlinear Programming, School of Mathematics, The University of Birmingham, U.K.
- 2005/06-2007/08: Lectures in Operations Management, School of Mathematics, The University of Birmingham, U.K.
- 2005/06-2007/08: Joint Lectures in Impact of Mathematics (20%), School of Mathematics, The University of Birmingham, U.K.
- 2006/07: Joint Lectures in Research Frontiers in Management Mathematics (50%), School of Mathematics, The University of Birmingham, U.K.
- 2008/09: Research Frontiers in Management Mathematics, School of Mathematics, The University of Birmingham, U.K.
- 2006/07-2007/08 and 2009/10: Heuristic Optimisation, School of Mathematics, The University of Birmingham, U.K.

- 2007/08-2010/11: Multicriteria Decision Making, School of Mathematics, The University of Birmingham, U.K.
- 2009/10-2010/11: Mathematical Finance, School of Mathematics, The University of Birmingham, U.K.

Sándor speaks and writes fluently in the following languages: Hungarian, Romanian and English.

Teaching

- BSc/MSci in Mathematics, Bsc/MSci in Mathematics with Business Management, Bsc/MSci in Mathematical Engineering, MSc in Mathematical Finance (Major in Mathematics and Minor in any subject, and any other programme which can choose this module)
- Mathematical Finance
- Msci in Mathematics
- Multicriteria Decision Making

Research

RESEARCH THEMES

- Convex Optimisation
- Equilibrium Systems
- Multicriteria Decision Problems
- Riemannian Geometry
- Artificial Intelligence

RESEARCH ACTIVITY
Sándor's Research Interests includes:

- ORDERED VECTOR SPACES
  Projection onto cones and applications
  Latticially ordered Euclidean and Hilbert spaces
- EQUILIBRIUM SYSTEMS
  Applications of nonlinear analysis
  Topological methods and ordered vector spaces to fixed point theorems
  Surjectivity theorems
  Nonlinear spectral theory
  Variational inequalities
  Nonlinear complementarity problems and integral equations
- MULTICRITERIA DECISION PROBLEMS
  Stability of decision models
  Global optimization methods
  Genetic programming methods
  Axiomatic foundation
- RIEMANNIAN GEOMETRY
  Extensions of monotone operators
  Extensions of variational inequalities and singularities of vector fields
  Algorithms
- ARTIFICIAL INTELLIGENCE
  Genetic programming
  Diversity of genetic programs
  Llimitation of code growth

Publications

Németh, A. B. and Németh, S.Z. (2010), How to project onto an isotone projection cone, Linear Algebra and its Applications, 433(1):41-51.

Németh, S.Z.: Isotone retraction cones in Hilbert spaces, (2010), Nonlinear Analysis: Theory, Methods and Applications, 73(2):495-499.

Németh, S.Z. (2009), Iterative methods for nonlinear complementarity problems on isotone projection cones, Journal of Mathematical Analysis and Applications, 350(1):340-347.

Isac, G. and Németh, S.Z. (2008), Scalar and Asymptotic Scalar Derivatives, Theory and Applications. Series: Springer Optimization and Application, Vol 13, Springer.

Isac, G. and Németh, S.Z.: REFE-acceptable Mappings (2008), A necessary and sufficient condition for the nonexistence of a regular exceptional family of elements, Journal of Optimization Theory and Applications, 137(3): 507-520.

Isac, G. and Németh, S.Z. (2006), Fixed points and positive eigenvalues for nonlinear operators, Journal of Mathematical Analysis and Applications, 314(2): 500-512.

Isac, G. and Németh, S.Z. (2005), Duality in multivalued complementarity theory by using inversions and scalar derivatives. Journal of Global Optimization, 33(2): 197-213.

Ekárt, A. and Németh, S.Z. (2005), Stability of tree structured decision functions, European Journal of Operational Research, 160(3): 676-695.

Ferreira, O.P., Lucambio Pérez, L.R. and Németh, S.Z. (2005), Singularities of monotone vector fields and an extragradient-type algorithm, Journal of Global Optimization, 31(1): 133-151.

Ekárt, A. - Németh, S.Z.: Maintaining the Diversity of Genetic Programs. E. Lutton, J. A. Foster, J. Miller, C. Ryan, A. G. B. Tettamanzi (Eds.). Proceedings of the 4th European Conference on Genetic Programming, EUROGP'2002, Kinsale, 3-5 April 2002, Lecture Notes in Computer Science, 2278: 163-172.