Prof. Dr. Thomas M. Surowiec

http://www.mathematik.uni-marburg.de/~surowiec
surowiec@mathematik.uni-marburg.de | +49 (0) 6421 28 25400

EDUCATION

HUMBOLDT-UNIVERSITÄT
PH.D. IN MATHEMATICS
Jan 2010 | Berlin, Germany

STEVENS TECH
M.S. STOCHASTIC SYSTEMS & OPTIMIZATION (W/ THESIS)
May 2006 | Hoboken, NJ

B.S. MATHEMATICAL SCIENCES
May 2004 | Hoboken, NJ

RESEARCH

THEORY & ALGORITHMS
I work on theory and algorithms for non-smooth, stochastic, and PDE-constrained optimization and equilibrium problems.

APPLICATIONS
My work is geared towards applications in microfluidics and photonics as well as the development of risk-averse methodologies in the engineering sciences.

TEACHING

GRADUATE
PDE-Constrained Optimization
Stochastic Programming
Non-smooth Optimization
Variational Inequalities
Convex Analysis

UNDERGRADUATE
Real Analysis
Linear Programming
Nonlinear Optimization

EDITORIAL WORK

REVIEWS
SIAM J. Optimization
Mathematical Programming
Optimization Methods & Software
Optimization

SKILLS

PROGRAMMING
Matlab • Julia • Python

LANGUAGES
English (native) • German (fluent) • Italian (intermediate)

EXPERIENCE

ASSOCIATE PROFESSOR
September 2016 – | Philipps-Universität Marburg, Germany
- Head of research group "Mathematical Optimization" in the Department of Mathematics and Computer Science

ASSISTANT PROFESSOR
May 2014 – September 2016 | Humboldt-Universität zu Berlin, Germany
- Juniorprofessur for "Non-smooth Optimization and Set-valued Analysis"

RESEARCH ASSOCIATE
May 2009 – May 2014 | Humboldt-Universität zu Berlin, Germany
- Member of research group "Applied Mathematics" led by Prof. Dr. Michael Hintermüller.

CURRENT & PAST RESEARCH PROJECTS

SPP 1962 P10 | CO-PRINCIPAL INVESTIGATOR
June 2017 – Present
- Full title: **Generalized Nash Equilibrium Problems with Partial Differential Operators: Theory, Algorithms, and Risk Aversion**
- Joint project w/ M. Hintermüller (HU Berlin, WIAS)

ECMATH OT1 | CO-PRINCIPAL INVESTIGATOR
June 2014 – June 2017
- Full title: **Mathematical Modeling, Analysis, and Optimization of Strained Germanium-Microbridges**
- Joint project w/ M. Hintermüller (HU Berlin, WIAS), A. Mielke (HU Berlin, WIAS) Marita Thomas (WIAS)

RECENT WORK

PUBLICATIONS | IN REFEREED JOURNALS
- **Existence and Optimality Conditions for Risk-Averse PDE-Constrained Optimization**, SIAM/ASA J. Uncertainty Quantification 6 (2), (2018) 787-815. (w/ D.P. Kouri)
- **A PDE-constrained optimization approach for topology optimization of strained photonic devices** Optim Eng (2018) 19: 521. https://doi.org/10.1007/s11081-018-9394-5 (w/ L. Adam, M. Hintermüller)
- **Finite Horizon Model Predictive Control of Electrowetting on Dielectric with Pinning**, Inter- faces and Free Boundaries 19 (1), (2017) 1-30. (w/ H. Antil, M. Hintermüller, R.H. Nochetto, and D. Wegner)
- **Risk-Averse PDE-Constrained Optimization Using the Conditional Value-At-Risk**, SIAM J. Optim., 26(1), (2016), 365-396. (w/ D.P. Kouri)

ORGANIZATION

ICSP 2019 TRONDHEIM, NORWAY | MINISYMPOSIUM
- "PDE-Constrained Optimization und Uncertainty and Applications" with D. P. Kouri (Sandia)

SIAM UQ 2018 ANAHEIM, CALIFORNIA | MINISYMPOSIUM
- "Exploiting Structure in Optimization under Uncertainty" with D. P. Kouri (Sandia), D. Ridzal (Sandia), H. Antil (GMU)

Reference letters available upon request. I am a US citizen residing in Germany.