

## **Title: Property preservation in parametric optimization**

**Abstract:** We develop a certificate-based framework for property preservation in parametric optimization. Its central object is an exact liftability set combining upstairs certificates, and feasible lifts of the positive and negative parts of a downstairs certificate. Membership implies preservation; separation yields a violating witness. This gives a unified treatment of convexity, submodularity, and related preservation phenomena for value functions.

**Biography:** Dr. Donglei Du is a professor in Operations Research at the Faculty of Management (FOM), University of New Brunswick (UNB), Canada. His main research interests are quantitative investment management, combinatorial optimization, approximations algorithms, robust optimization, social network analysis, algorithmic game theory, supply chain management, facility location, and machine scheduling. His publications have appeared in top-tier journals, including Operations Research, SIAM Journal on Discrete Mathematics, European Journal of Operation Research, etc. His academic achievement was recognized by several awards from UNB at both the university and faculty levels, including the University Research Scholar (UNB, 2014), University Merit Award (UNB, twice, 2006 and 2012), Excellence in Research Award (FOM, 2007), and Annual Research Award (FOM, 2004).