

First Asian Team won the prestigious Beale--Orchard-Hays Prize for Excellence in Computational Mathematical Programming 2018



Professor Defeng Sun (middle), Professor Kim-Chuan Toh (2nd from right) and Dr. Liuqin Yang (2nd from left) received the prize at the 23rd International Symposium for Mathematical Programming (ISMP) in July 2018.

Congratulations! Professor Defeng Sun from PolyU's Department of Applied Mathematics, together with his collaborators Professor Kim-Chuan Toh and Dr. Liuqin Yang, was awarded the 2018 Beale--Orchard-Hays Prize for Excellence in Computational Mathematical Programming for their outstanding work on SDPNAL+, which describes a new method for semidefinite programming with nonnegative constraints (Mathematical Programming Computation 2015). Professor Sun and his team is the first Asian team honored for this prestigious prize in computational optimization since its establishment. The prize has been presented at the opening ceremony of the 23rd International Symposium for Mathematical Programming (ISMP) in Bordeaux, France on 2 -6 July 2018.

About the Prize

Established in 1985, the Beale--Orchard-Hays Prize for Excellence in Computational Mathematical Programming is presented once every three years by the Mathematical Optimization Society, in memory of Martin Beale and William Orchard-Hayes, two pioneers in computational mathematical optimization. Nominated work must demonstrate excellence in any aspect of computational mathematical programming. "Computational mathematical programming" includes the development of high-quality mathematical programming algorithms and software, the experimental evaluation of mathematical programming algorithms, and the development of new methods for the empirical testing of mathematical programming techniques.

[The official website on the Beale--Orchard-Hays Prize: <http://www.mathopt.org/?nav=boh>]

About the Award-winning Project

The research work of Professor Sun and his team on SDPNAL+ is a much enhanced version of SDPNAL introduced by Zhao et al. (SIAM J Optim20:1737–1765, 2010) for solving generic SDPs. By employing a majorized semismooth Newton-CG augmented Lagrangian method coupled with a convergent 3-block alternating direction method of multipliers, they have successfully tackled the numerical difficulty its original version faced. Numerical results for various large scale SDPs with or without nonnegative constraints show that the proposed method is not only fast but also robust in obtaining accurate solutions.

Full version of the paper:

http://www.math.nus.edu.sg/~matsundf/SDPNAL+_online.pdf

<https://link.springer.com/article/10.1007/s12532-015-0082-6>

About the Mathematical Optimization Society (MOS)

MOS is an international organization dedicated to the promotion and the maintenance of high professional standards in the subject of mathematical optimization. The MOS is incorporated as a non-profit tax-exempt scientific organization in the United States. It publishes the journals Mathematical Programming A and B, consisting of technical articles on all aspects of the subject; the journal Mathematical Programming Computation, for articles with a computational focus; the MOS/SIAM Series on Optimization, comprising monographs and texts on particular optimization topics; and the newsletter Optima. Every three years the Society sponsors the International Symposium on Mathematical Programming (ISMP). In other years, it supports the Conference on Integer Programming and Combinatorial Optimization (IPCO) and the International Conference on Continuous Optimization (ICCOPT). [Website of MOS: <http://www.mathopt.org/?nav=about>]