學術報告

When it is Unnecessary to be Optimal and Enough to be Greedy

报告人：Prof. Edwin K. P. Chong

**Colorado State University, USA
Dept. of Electrical and Computer
Engineering / Mathematics**

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Biography: Edwin K. P. Chong received the B.E. degree from the University of Adelaide and the M.A. and Ph.D. degrees both from Princeton University, where he held an IBM Fellowship. He joined Purdue University in 1991, where he was named a University Faculty Scholar. He has been a Professor of ECE and Professor of Mathematics at Colorado State University. He received the NSF CAREER Award and the ASEE Frederick Emmons Terman Award. He received the IEEE Control Systems Society Distinguished Member Award. Prof. Chong is a Fellow of IEEE. He was a Senior Editor of the IEEE Transactions on Automatic Control until 2016. He has served as a member of the IEEE Control Systems Society Board of Governors and as Vice President for Financial Activities until 2014. He serves as its President in 2017.

We discuss optimization problems where the objective function is submodular, which roughly means that it has the property of diminishing returns. In such problems, we can provably bound the performance of the greedy solution relative to the optimal solution. We present a variety of recent results related to such optimization problems, including bounds for "string-submodular" problems, bounds related to k-batch greedy strategies, improved bounds involving notions of curvature, and bounds on Nash equilibria in submodular games. We illustrate these results in the context of various application problems arising in task scheduling.