

# Matrix Computations & Scientific Computing Seminar

Organizer: James Demmel & Ming Gu

Wednesday, 12:10–1:00pm, 380 Soda

---

Nov. 16    **Andy Packard**, UC Berkeley

*Establishing dynamical system properties with semidefinite and sum-of-squares programming*

Assessing the region-of-attraction, reachability, and input/output gain of dynamical systems are different instances of quantitative certification metrics. Some the earliest applications of SDP trace back to assessing related certification questions for uncertain linear systems, where optimizations with indefinite quadratic objectives and indefinite quadratic constraints arise quite naturally. Less scalable generalizations to nonlinear dynamical systems can lead to SOS programming. In this talk, we will introduce and summarize some results in these directions.