1049-90-115   **Jiawang Nie*** (`njw@math.ucsd.edu`), UCSD Mathematics Department, 9500 Gilman Drive, La Jolla, CA 92122, and **J. William Helton**. *SDP representation of convex sets.*

This talk will present some new results on representing convex set by semidefinit programming (SDP). A set is SDP representable if it can be expressed by some linear matrix inequality (LMI) with lifting variables. The necessary conditions for SDP representation are convexity and being semialgebraic. This talk will show a general sufficient condition: if the boundary of a convex set has positive curvature, then it is SDP representable. This is joint work with Bill Helton. (Received February 27, 2009)