

# Compactly SDR set and sufficient conditions for semidefinite representation

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This talk concerns the classical problem of finding the sufficient conditions of non-compact convex set to be semidefinite representable. Semidefinite representable (SDR) sets play an important role in modern convex optimization. We know, SDR sets are generalized version of polyhedral sets. Victor Klee (1959) introduced boundedly polyhedral sets in polyhedral theory and based on the characterization of boundedly polyhedral set, various results of polyhedral sets have been found in convex analysis. We generalize boundedly polyhedral set as compactly SDR set (in semidefinite programming) and characterize it considering polars and in various other ways. Based on the characterization of compactly SDR set, we develop sufficient conditions for convex sets to be semidefinite representable.