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*Optimizing condition numbers*

In this talk we consider the problem of minimizing condition numbers over a compact convex subset of the cone of symmetric positive semi-definite $n \times n$ matrices. We show that the condition number is a Clarke regular strongly pseudoconvex function. We prove that a global solution of the problem can be approximated by an exact or an inexact solution of a nonsmooth convex program. This asymptotic analysis provides a valuable tool for designing an implementable algorithm for solving the problem of minimizing condition numbers.