Notes on Convex Optimization by Steven Boyd and Lieven Vandenberghe

compiled by D.Gueorguiev 4/3/2025

# Notation

– the set of symmetric matrices

– the set of symmetric positive semidefinite matrices

– the set of symmetric positive definite matrices

The Positive Semi-Definite Cone

We use the notation to denote the set of symmetric matrices,

which is a vector space with dimension . We use the notation to denote the set of symmetric positive semidefinite matrices:

and the notation to denote the set of symmetric positive definite matrices:

A graph of a function

Description automatically generated

Figure : Boundary of the positive semidefinite cone in

# References

[1] [Convex Optimization, Steven Boyd, Lieven Vandenberghe, 2009](https://github.com/dimitarpg13/optimization_classification_regression/blob/main/literature/books/ConvexOptimization_Boyd_2004.pdf)