

The Role of Metric Projectors in Nonlinear Conic Optimization Problems

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The non-polyhedral nature of the closed convex cones presented in nonlinear conic optimization problems complicates our understanding on these problems both theoretically and numerically. In this talk, we emphasize that variational analysis on the metric projection operator over the closed convex cones plays a key role in studying these problems. We demonstrate this, in particular by using the metric projection operator over the cone of symmetric and positive semidefinite matrices, in several aspects including perturbation analysis, convergence analysis of algorithms, and numerical computations.