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**Peter Burgisser\*** (pbuerg@math.tu-berlin.de). *Optimization, Complexity and Invariant Theory.*

Invariant and representation theory studies symmetries by means of group actions and is a well established source of unifying principles in mathematics and physics. Recent research suggests its relevance for complexity and optimization through quantitative and algorithmic questions. The goal of the talk is to give an introduction to new algorithmic and analysis techniques that extend convex optimization from the classical Euclidean setting to a general geodesic setting. We also point out surprising connections to a diverse set of problems in different areas of mathematics, statistics, computer science, and physics.

The talk is mainly based on this joint article with Cole Franks, Ankit Garg, Rafael Oliveira, Michael Walter and Avi Wigderson: <http://arxiv.org/abs/1910.12375> (Received January 19, 2021)