

**Title: Relative entropy methods in constrained polynomial and signomial optimization**

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**Abstract:** Relative entropy programs belong to the class of convex optimization problems. Within techniques based on the arithmetic-geometric mean inequality, they facilitate to compute nonnegativity certificates of polynomials and of signomials (i.e., exponential sums). While the initial focus was mostly on unconstrained certificates and unconstrained optimization, recently, Murray, Chandrasekaran and Wierman developed conditional techniques, which provide a natural extension to the case of convex constrained sets. The goal of this minicourse is to give an introduction into these concepts and to explain the geometry of the resulting cone ("conditional SAGE cone"). To this end, we introduce and study the sublinear circuits of a finite point set in  $\mathbb{R}^n$ , which generalize the simplicial circuits of the affine-linear matroid induced by  $A$  to a constrained setting.

The new results in this talk are based on joint work with R. Murray and H. Naumann.