SUDAN XING, Memorial University of Newfoundland

The general dual-polar Orlicz-Minkowski problem

In this talk, I will discuss the general dual-polar Orlicz-Minkowski problem, which is "polar" to the recently initiated general dual Orlicz-Minkowski problem and "dual" to the newly proposed polar Orlicz-Minkowski problem. The problem states as follows:

Under what conditions on a nonzero finite Borel measure μ defined on the unit sphere, continuous functions $\varphi : (0,\infty) \to (0,\infty)$ and $G : (0,\infty)\times S^{n-1} \to (0,\infty)$ can we find a convex body K (with the origin in its interior) solving the following optimization problems

$$\inf / \sup \left\{ \int_{S^{n-1}} \varphi(h_Q(u)) d\mu(u) : Q \in \widetilde{\mathcal{B}} \right\},$$

where $\widetilde{\mathcal{B}} = \left\{ Q \in \mathcal{K}^n_{(o)} : \ \widetilde{V}_G(Q^\circ) = \widetilde{V}_G(B^n) \right\}$ with B^n the unit ball and $\widetilde{V}_G$ the general dual volume. In particular, we will present the existence, continuity and uniqueness of the solutions for the general dual-polar Orlicz-Minkowski problem. This talk is based on a joint work with Deping Ye and Baocheng Zhu.