DEPING YE, Memorial University of Newfoundland
The Riesz α-energy of log-concave functions and related Minkowski problem

A central problem in convex geometry is to solve the following measure equation for an unknown convex body (i.e., compact convex set in $\mathbb{R}^n$ with nonempty interior) K:

$$\mu = S(K, \cdot),$$

where μ is a given nonzero finite Borel measure defined on the unit sphere S^{n-1} and $S(K, \cdot)$ denotes the surface area measure of K, also defined on S^{n-1}. This is known as the classical Minkowski problem, which has been extended into various directions, including the one involving the chord integral, the key concept in integral geometry.

In my talk, I will present our recent progress on the first order variation of the Riesz α-energy of a log-concave function f with respect to the Asplund sum. In particular, we will discuss the associated Minkowski problem and its solution under some mild conditions on the measure μ.