

SCMS Seminar



L^p CHRISTOFFEL-MINKOWSKI PROBLEM

Speaker: Prof. Chao Xia

Xiamen University

Time: 3:30 - 4:30 p.m., Wednesday, May 3rd, 2017

Venue: Room 2201, East Guanghua Tower (Main), Fudan University

Abstract:

The p -sum for two convex bodies was introduced by Firey. The associated Brunn-Minkowski-Firey theory was later developed by Lutwak. In this talk, I will discuss the L^p Christoffel-Minkowski problem and focus on its PDE aspect. We will review previous results and prove that for the case $1 < p < k+1$, if the given data is even and also satisfies certain convexity condition, then there exists a unique solution to this problem. We give examples to show the evenness condition cannot be removed in general. This is joint work in progress with Pengfei Guan.

$$b_i = \frac{a_{ij} x_j^{(k)} + \sum_{j=i+1}^n a_{ij} x_j^{(k)}}{\sum_{j=1}^{i-1} a_{ij} x_j^{(k)} + \sum_{j=i+1}^n a_{ij} x_j^{(k)}}$$
$$\Delta y_i = \int_{x_i}^{x_{i+1}} y' dx$$
$$\int_{x_k}^{x_{k+1}} f(x, y) dx = \int_{x_k}^{x_{k+1}} y' dx = y(x)$$
$$\sqrt{(y_n + 0.5\tau k_1)^2 + (t_n + 0.5\tau)^2}$$