Special Program in Applied Mathematics and Applied Mechanics

Seismic imaging of Earth's structure based on generalized Radon transform

2014 - 03 - 19 (Wed.)
15:00 - 18:00
308, Mathematics Research Center Building (ori. New Math. Bldg.)

Radon transform provides a unifying mathematical framework for reconstruction problems, but Radon's original work went unnoticed in the applied sciences literature for half a century until 1970's, before when Radon's results were "rediscovered" by researchers in various fields. Today Radon transform has found its application in areas from medical imaging, astronomy, to geophysics. In this talk, I will introduce its applications in seismology. Radon transform has conventionally been used in the computation of synthetic seismograms, and more recently it has been applied to the imaging of Earth's structure. I will review the recent development of the imaging algorithm based on generalized Radon transform, and present our resulting images of upper mantle structure that enable us to further understand the inner workings of the Earth's dynamic system. (The talk will be presented in Mandarin.)