The Hong Kong University of Science and Technology  
Department of Mathematics  
Seminar on Applied Mathematics  
Extended Sampling Method for Inverse Scattering Problems  

by  

Prof. Jiguang Sun  
Michigan Technological University  

Abstract  
A new sampling method for inverse scattering problems is proposed to process far field data of one incident wave. The method sets up ill-posed integral equations and uses the (approximate) solutions to reconstruct the target. In contrast to the classical linear sampling method, the kernels of the associated integral operators are the far field patterns of sound-soft balls. The measured data is moved to right hand sides of the equations, which gives the method the ability to process limited aperture data. Furthermore, a multilevel technique is employed to improve the reconstruction. Numerical examples show that the method can effectively determine the location and approximate the support with little a priori information of the unknown target.  

Date: Wednesday, 19 September 2018  
Time: 4:00p.m. – 5:00p.m.  
Venue: Room 3472, Academic Buildings (Lifts 25, 26), HKUST  

All are welcome!