



The Hong Kong University of Science and Technology

Department of Mathematics

**Seminar on Applied Mathematics and
Computational Science**

Diffusion generated methods for target-valued maps

by

Prof. Braxton Osting
University of Utah

Abstract

A variety of tasks in inverse problems and data analysis can be formulated as the variational problem of minimizing the Dirichlet energy of a function that takes values in a certain target set and possibly satisfies additional constraints. These additional constraints may be used to enforce fidelity to data or other structural constraints arising in the particular problem considered. I'll present diffusion generated methods for solving this problem for a wide class of target sets and prove stability and convergence. I'll give examples of how these methods can be used for the geometry processing task of generating quadrilateral meshes, finding Dirichlet partitions, constructing smooth orthogonal matrix valued functions, and solving inverse problems for target-valued maps. This is joint work with Dong Wang and Ryan Viertel.

Date: Friday, 1 June 2018

Time: 2:00p.m. – 3:00p.m.

**Venue: Room 3494 (lift 25, 26),
Academic Building, HKUST**

All are welcome!