

# BI-CO MATHEMATICS COLLOQUIUM

**Trubee Davison**

Haverford College

## *“Fixed Points, Fractals, and Functional Analysis”*

**Monday, March 14, 2016**

Talk at 4:00 – Park 338  
Tea at 3:30 – Park 355, Math Lounge

**Abstract:**

The collection of Borel probability measures on a compact metric space  $X$  can be made into a complete metric space via the Monge-Kantorovich metric. We generalize this well known result to projection-valued measures. As an application, we use the Contraction Mapping Theorem on this complete metric space of projection-valued measures to provide an alternative method for proving a fixed point result due to P. Jorgensen (U of Iowa). This fixed point, which is a projection-valued measure, arises from an iterated function system on  $X$ , and is related to Cuntz algebras, and self-similar fractals.

**BRYN MAWR COLLEGE**