

Department of Applied Mathematics and Statistics  
The Johns Hopkins University

SEMINAR

Dan Rockmore  
Depts. of Math. & Comput. Sci.  
Dartmouth College

November 16, 2006  
304 Whitehead Hall  
Refreshments: 3:30 p.m.  
Seminar: 4:00 p.m.

FAST FOURIER TRANSFORMS FOR SEMIGROUPS

ABSTRACT

A general version of the Fast Fourier Transform is as an algorithm for the efficient calculation of a change of basis, where the target basis is one that reflects some sort of group invariance. The implicit group action reflects a global symmetry of the underlying domain for the data. In this talk we revisit this idea with the goal of extending these notions to the case of semigroups, where the invariance can be local in nature. We discuss in some detail the case of the “rook monoid” and its potential application to the analysis of partial ranking data. This is joint work with Martin Malandro.