ALMUT BURCHARD, University of Toronto
Random reflections, symmetrizations, and foldings on the sphere

Two-point symmetrizations are simple rearrangements that have been used to prove isoperimetric inequalities on the sphere. For each unit vector u, there is a two-point symmetrization that pushes mass towards u across the normal hyperplane.

How can full rotational symmetry be recovered from partial information? It is known that the reflections at n hyperplanes in general position in n-dimensional space generate a dense subgroup of O(n); in particular, a continuous function that is symmetric under these reflections must be radial. How many two-point symmetrizations are needed to verify that a function which increases under these symmetrizations is radial? I will show that n+1 such symmetrizations suffice, and will discuss the ergodicity of the random walk generated by the corresponding folding maps on the sphere.

(Joint work with G.R. Chambers and A. Dranovski)