DOUG RAVENEL, University of Rochester

**The Arf-Kervaire invariant problem**
Sa 4:40-5:40, 1040 Dana Building

Mike Hill, Mike Hopkins and I recently solved the 50 year old Arf-Kervaire invariant problem in algebraic topology. The talk will describe the background and history of the problem and give a brief overview of the proof of our main theorem. More information can be found online at http://www.math.rochester.edu/u/faculty/doug/kervaire.html.

ALAN REID, University of Texas, Austin

**Geometric properties of arithmetic hyperbolic 3-manifolds**
Sa 9:30-10:30, 1040 Dana Building

Arithmetic hyperbolic 3-manifolds are an important subclass of hyperbolic 3-manifolds of finite volume which arise from number theoretic constructions. This talk will focus on how one might try to understand these manifolds geometrically, and study their geometric properties.

MOON DUCHIN, University of Michigan, Ann Arbor

**Problems in the large-scale geometry of groups**
Sa 2:00-3:00, 1024 Dana Building

It has been extremely productive in group theory to view things from far away, say by looking at the boundary at infinity, the asymptotic cone, or long-term dynamics. I'll introduce some classes of groups everyone should know and love and use those to illustrate open problems in geometric group theory, ranging from fiendishly hard to alluringly approachable.

TOM FIORE, University of Michigan, Dearborn

**Higher operads**
Sa 2:00-3:00, 1040 Dana Building

Operads and their many variants are important tools for topologists because of their simplifying power and wide variety of applications. This talk will be an introduction to the theory of operads and its applications, with a chronological tour highlighting: the homotopy associative structure on loop spaces, the renaissance in the 90’s, Batanin’s operads in higher category theory, the quasi-operads of Moerdijk–Weiss, and the infinity-operads of Lurie. Open problems and exercises will be mentioned along the way.

BENJAMIN SCHMIDT, Michigan State University

**Questions about geodesics in Riemannian manifolds**
Sa 2:00-3:00, 1046 Dana Building

In a Riemannian manifold, geodesics are paths that locally minimize length. Although their local behavior admits this simple description, their global behavior can be much more complicated. I'll discuss several questions concerning geodesics, many of which aim to metrically characterize the most symmetric spaces.