**Department of Mathematics and Statistics Colloquium**

# Spherical Inversions and Their Applications to Geometry

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Abstract: Anyone who has set sail in a cruise ship in the ocean has no doubt looked off into the horizon and understood how people once thought the earth was flat. While an infinite plane and a bounded sphere look completely different from afar, the spherical earth certainly appears flat when standing upon it; thus, it seems plausible to visualize a plane as a sphere with an infi nite radius. Three-dimensional inversions "erase" distinctions between spheres and planes by allowing spheres and planes to be mapped one to another while preserving key properties. In certain situations, the use of a well-chosen inversion can significantly increase the ease with which a geometric question can be answered. This talk will demonstrate the use of spherical inversions with several examples, including three-dimensional extensions of some classic two-dimensional problems.

**Monday, October 3 at 3:45 in Roop 103**

**refreshments at 3:30**