

## **Matt Gursky**

### *A notion of maximal volume in conformal geometry and some applications*

In this talk I will describe a conformal invariant called the “ $k$ -maximal volume.” This invariant arose in the study of a fully nonlinear version of the Yamabe problem, but in low dimensions it has interesting connections to problems in global Riemannian geometry. I will illustrate this with two examples: a sharp sphere theorem in four dimensions, and a variational characterization of three-dimensional space forms.