

1116-53-2120

James Dibble* (jr-dibble@wiu.edu). *The convexity radius of a Riemannian manifold.*

An elementary result in Riemannian geometry is that the convexity radius and injectivity radius of a compact manifold M satisfy $r(M) \leq \frac{1}{2}\text{inj}(M)$. Somewhat surprisingly, there are no examples in the literature where this inequality is strict. It will be shown in this talk that the ratio $\frac{r(M)}{\text{inj}(M)}$ may be made arbitrarily small within the class of compact Riemannian manifolds of any fixed dimension at least two. This is proved using Gulliver's method of constructing manifolds with focal points but no conjugate points. The approach is suggested by a new characterization of the convexity radius, which resembles a classical result of Klingenberg about the injectivity radius. (Received September 21, 2015)