1163-05-258 **Nicholas Scoville*** (nscoville@ursinus.edu), 601 E Main Street, Math And CS, Collegeville, PA 19465, and **Matt Zaremsky**. *Higher connectivity of the Morse complex.*

The Morse complex $\mathcal{M}(\Delta)$ of a finite simplicial complex Δ is the complex of all gradient vector fields on Δ. In this talk we study higher connectivity properties of $\mathcal{M}(\Delta)$. For example, we prove that $\mathcal{M}(\Delta)$ gets arbitrarily highly connected as the maximum degree of a vertex of Δ goes to ∞, and for Δ a graph additionally as the number of edges goes to ∞. We also classify precisely when $\mathcal{M}(\Delta)$ is connected or simply connected. Our main tool is Bestvina–Brady Morse theory, applied to a "generalized Morse complex." (Received August 31, 2020)