1135-55-2255 **Greg Malen*** (gmalen@math.duke.edu). *Dense Random Clique Complexes.*

One model for percolation on high-dimensional simplicial complexes is $X(n,p)$, the probably space of Vietoris–Rips complexes, or clique complexes, on n vertices where each edge appears independently with probability p. This is a natural extension of the Erdős–Rényi random graph model $G(n,p)$ into higher dimensions. Whereas the random d-dimensional complexes $Y_d(n,p)$ provide high-dimensional analogues to the phase transitions observed in sparse Erdős–Rényi random graphs, here we examine the evolution of $X(n,p)$ as p increases into the dense and super-dense regimes. In particular, around middle dimension we exhibit non-trivial homology in an interval with length that increases from arbitrary finite lengths when $p = (\log n)^{-\alpha}$, to $O(\log \log n)$ when p is constant. We also discuss various homology vanishing and collapsibility results, and examine bounds for the threshold in p at which $X(n,p)$ becomes contractible with high probability. (Received September 25, 2017)