1154-05-376 **Gweneth McKinley*** (gweneth@mit.edu). *Super-logarithmic cliques in dense inhomogeneous random graphs.*

In the theory of dense graph limits, a graphon is a symmetric measurable function $W : [0,1]^2 \to [0,1]$. Each graphon gives rise naturally to a random graph distribution, denoted $\mathbb{G}(n, W)$, that can be viewed as a generalization of the Erdős-Rényi random graph. Recently, Doležal, Hladký, and Máthé gave an asymptotic formula of order $\log(n)$ for the size of the largest clique in $\mathbb{G}(n, W)$ when W is bounded away from 0 and 1. We show that if W is allowed to approach 1 at a finite number of points, and displays a moderate rate of growth near these points, then the clique number of $\mathbb{G}(n, W)$ will be $\Theta(\sqrt{n})$ almost surely. We also give a family of examples with clique number of order $\Theta(n^\alpha)$ for any $\alpha \in (0,1)$, and some conditions under which the clique number of $\mathbb{G}(n, W)$ will be $o(\sqrt{n})$ or $\omega(\sqrt{n})$. This talk assumes no previous knowledge of graphons. (Received September 02, 2019)