1161-05-146 **Yifan Jing***, 273 Altgeld Hall 1409 W. Green Street, Urbana, IL 61801, and **Bojan Mohar**.

Approximate the genus of dense graphs.

The genus $g(G)$ of a graph G is defined as the minimum genus of a surface in which G can be embedded (drawn without crossings). Thomassen proved that it is NP-hard to determine whether $g(G) < k$, when the graph G and an integer k are given to us as the input. Robertson and Seymour, and later Mohar, proved that this problem is FPT (fixed-parameter tractable). However, it is wide open whether the value of $g(G)$ can be approximated. The speaker will give an overview of this problem, describe underlying conjectures, and present a complete solution for the case when the graph is dense. The solution uses Szemeredi Regularity Lemma and a result on the genus of quasi-random graphs. This is joint work with Bojan Mohar. (Received August 15, 2020)