Abstract: The motivating question for this work is: Can we have both a saturated ideal and the tree property on \( \aleph_2 \)? Towards the negative direction, we show that for a regular cardinal \( \kappa \), if \( 2^{<\kappa} \leq \kappa^+ \) and there is a weakly presaturated ideal on \( \kappa^+ \) concentrating on cofinality \( \kappa \), then \( \Box^*_\kappa \) holds. This proves a conjecture of Foreman about the approachability ideal on \( \aleph_2 \) under the assumption that the continuum is at most \( \aleph_2 \). A surprising corollary is that if there is a weakly presaturated ideal \( J \) on \( \aleph_2 \) such that \( P(\aleph_2)/J \) is a proper forcing, then CH holds. This is joint work with Sean Cox.

This meeting will be using Zoom - please write an email to fcaldero@uic.edu or sinapova@uic.ed for login information.