Title: *Normalizers and Approximate Units for Inclusions of C*-Algebras*

Speaker: David Pitts (University of Nebraska-Lincoln)

Abstract: Consider *inclusions*, which are pairs of C^*-algebras (C, D) with D an abelian subalgebra of C. An element $v \in C$ *normalizes* D if $v^*Dv \cup vDv^* \subseteq D$. The inclusion (C, D) is *regular* when the linear span of the normalizers is dense in C and is *singular* when every normalizer belongs to D.

I will prove a commutation result for Hermitian normalizers, then discuss some consequences of this result related to familiar constructions. Sample consequence: when D is a regular MASA in C, every approximate unit for D is an approximate unit for C; this leads to simplifiation of the notions of Cartan MASA and C^*-diagonal in the non-unital setting.

The inclusion (C, D) is *intermediate* to the regular MASA inclusion (B, D) if $D \subseteq C \subseteq B$. I will give examples showing some singular MASA inclusions are intermediate to regular MASA inclusions, but others are not, and will discuss the fact that when $\mathcal{H}$ is a separable, infinite dimensional Hilbert space, no MASA inclusion of the form $(\mathcal{B}(\mathcal{H}), D)$ is intermediate to a regular MASA inclusion.

(Based on arXiv:2109.00856)