DAVID PITTS, University of Nebraska, Lincoln, NE 68588
Isomorphisms for Triangular Subalgebras of C^*-Diagonals

Renault, extending a definition of Kumjian, defines a *C^*-diagonal* to be a pair $(\mathcal{C}, \mathcal{D})$, where $\mathcal{C}$ is a unital C^*-algebra and $\mathcal{D} \subseteq \mathcal{C}$ is a unital abelian C^*-subalgebra satisfying:

(a) every pure state of $\mathcal{D}$ has a unique extension to a pure state of $\mathcal{C}$,

(b) $\overline{\operatorname{span}}\{v \in \mathcal{C} : v\mathcal{D}v^* \cup v^*\mathcal{D}v \subseteq \mathcal{D}\} = \mathcal{C}$, and

(c) the unique conditional expectation $E \colon \mathcal{C} \to \mathcal{D}$ (existence is implied by (a)) is faithful.

A norm-closed subalgebra $\mathcal{A} \subseteq \mathcal{C}$ is *triangular* if $\mathcal{A} \cap \mathcal{A}^* = \mathcal{D}$.

In this talk, I will discuss the following result:

Theorem *For $i = 1, 2$ suppose $(\mathcal{C}_i, \mathcal{D}_i)$ are C^*-diagonals and $\mathcal{A}_i \subseteq \mathcal{C}_i$ is triangular. Then any bounded isomorphism $\theta \colon \mathcal{A}_1 \to \mathcal{A}_2$ is completely bounded with $\|\theta\|_{cb} = \|\theta\|$.*

Let $\mathcal{B}_i \subseteq \mathcal{C}_i$ be the C^*-subalgebra of $\mathcal{C}_i$ generated by $\mathcal{A}_i$. It turns out that $\mathcal{B}_i$ is the C^*-envelope of $\mathcal{A}_i$. Thus, when θ is isometric, the theorem implies that θ extends to a $*$-isomorphism of $\mathcal{B}_1$ onto $\mathcal{B}_2$. This provides a new proof for, and an extension of, a result of Muhly, Qiu and Solel.