Ilijas Farah Let $\mathcal{Q}$ be the universal UHF algebra and let $\mathcal{R}$ be the hyperfinite II$_1$ factor. Are $\mathcal{Q}$ and $\mathcal{R}$ elementarily equivalent in the language of C$^*$-algebras? In other words, do $\mathcal{Q}$ and $\mathcal{R}$ have isomorphic ultrapowers (again, as C$^*$-algebras)? Note that a positive answer implies that $\mathcal{R}$ is an MF-algebra.

Related questions are: Is there a unital map from the Jiang-Su algebra $\mathcal{Z}$ to the (norm)central sequence algebra of $\mathcal{R}$? Does $\mathcal{R}$ have a nuclear model?

Ben Hayes Call a tracial C$^*$-algebra $(A, \tau)$ Hayesian if there is a trace-preserving embedding $A \hookrightarrow \prod_U M_n(\mathbb{C})$, where the latter ultraproduction is the C$^*$-algebra ultraproduction equipped with the trace obtained by taking the $U$-ultralimit of the normalized traces on the $M_n(\mathbb{C})$. Call a discrete group $\Gamma$ Hayesian if the tracial C$^*$-algebra $(C_r^*(\Gamma), \tau_\Gamma)$ is Hayesian, where $\tau_\Gamma$ is the canonical trace. Which groups are Hayesian? Here are some facts about Hayesian groups:

- Amenable groups are Hayesian. (Tikuisis-White-Winter)
- $\mathbb{F}_2$ is Hayesian. (Haagerup-Thjorbornsen)
- Free products of Hayesian groups are Hayesian (Reference?)
- Direct products of exact Hayesian groups.

Are there any non-Hayesian groups? Is the amalgamated free product of Hayesian groups over an amenable amalgam once again Hayesian?

Chris Phillips Fix $p \in (1, \infty)$. A unital $L^p$-operator algebra is a Banach algebra $\mathcal{A}$ such that there is an $L^p$-space $L^p(X, \mu)$ and an isometric unital Banach algebra homomorphism $\mathcal{A} \hookrightarrow \mathcal{B}(L^p(X, \mu))$. They appear to be closed under ultraproducts and are clearly closed under ultraroots (in fact substructures), so form an axiomatizable class in the language of unital Banach algebras. What are natural axioms?

Alessandro Vignati A result of K.P. Hart implies that if $X$ and $Y$ are two non-trivial continua, then $C(X)$ embeds into an ultrapower of $C(Y)$. It is also known that there is no metrizable continuum $X$ such that $C(Y)$ embeds into $C(X)$ for
all other metrizable continua \( Y \). In particular, this implies that for every metrizable continuum \( X \), there is a metrizable continuum \( Y \) such that \( C(X) \equiv C(Y) \) but \( X \not\sim Y \). For specific \( X \), find examples of such \( Y \). For example, find \( Y \) such that \( C([0, 1]) \equiv C(Y) \) but \([0, 1] \not\sim Y \).

In another direction, suppose that \( X \) and \( Y \) are locally compact spaces such that \( C(\beta X \setminus X) \equiv C(\beta Y \setminus Y) \). What can we say about \( C_0(X) \) vs. \( C_0(Y) \). Also, under the same assumption, if one assumes CH, do we know that in fact \( C(\beta X \setminus X) \not\sim C(\beta Y \setminus Y) \)?

**Ilan Hirshberg** First question: is there a \( C^* \)-algebra \( A \) such that \( A \not\equiv A^{\text{op}} \)? (If yes, how ‘nice’ can \( A \) be? Can it be unital, simple, ...?) Secondly, is there any natural model-theoretic meaning to looking at structures that resemble ultrapowers except one uses \( \beta X \) for \( X \) an arbitrary locally compact space (e.g. \( \mathbb{R}_+ \), which shows up in practice) rather than just \( \beta I \) for \( I \) a discrete set? Is there a corresponding logic for which this is well-behaved? Are there parallels to usual model-theoretic facts about ordinary ultrapowers? What uses does this construction have?
Chris Phillips Suppose that $A$ is a unital, simple, purely infinite $C^*$-algebra. Is there a state $\varphi$ on $A$ which can be distinguished up to unitary equivalence in the sense that for every automorphism $\alpha$ of $A$ there is a unitary $u$ in $A$ such that $\varphi \circ \alpha = \varphi \circ \text{ad}_u$? (If $A$ is a unital $C^*$-algebra with a unique tracial state $\tau$, then one has $\tau \circ \alpha = \tau$ for every automorphism $\alpha$ of $A$.)