Regular bounded Borel measures as completely bounded multipliers on $B(L^2(G))$

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Let $G$ be a locally compact group. Neufang (2000) proved a completely isometric representation theorem for the measure algebra $M(G)$ onto the algebra of all normal completely bounded $VN(G)$-bimodule maps on $B(L^2(G))$ which map $L^\infty(G)$ into $L^\infty(G)$. It is known that the later algebra is completely isomorphic to a subspace of $VN(G) \otimes_{eh} VN(G)$, the extended Haagerup tensor product of $VN(G)$ with itself.

In this talk we find a characterization of the elements of $M(G)$ in $VN(G) \otimes_{eh} VN(G)$ for weakly amenable groups $G$. This result is an analogue of a characterization for completely bounded multipliers of the Fourier algebra as elements of $L^\infty(G) \otimes_{eh} L^\infty(G)$. To do so, we study some properties of the Banach algebra of Haagerup tensor product of the Fourier algebra of $G$ with itself, whose dual is $VN(G) \otimes_{eh} VN(G)$. In particular, we study some sets of spectral synthesis of this algebra.

This is joint work with Ivan Todorov and Lyudmila Turowska.

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