

Banach Algebras 2009

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Some Banach algebras associated with locally compact quantum groups.

ABSTRACT. This talk is based on recent work with Zhiguo Hu and Matthias Neufang on locally compact quantum groups. Let $\mathbb{G} = (L_\infty(\mathbb{G}), \Gamma, \varphi, \psi)$ be a locally compact quantum group.

- We first show that if \mathbb{G} is semi-regular, the left uniform continuous function space $LUC(G) = \langle L_\infty(\mathbb{G}) \star L_1(\mathbb{G}) \rangle$ is a unital C^* -subalgebra of $L_\infty(\mathbb{G})$;
- We study the quantum measure algebra $M(\mathbb{G}) = C_0(\mathbb{G})^*$ and its connection with the completely bounded right (respectively, left and double) multiplier algebra $M_{cb}^r(L_1(\mathbb{G}))$ (respectively, $M_{cb}^l(L_1(\mathbb{G}))$ and $M_{cb}(L_1(\mathbb{G}))$) of \mathbb{G} . We show that $M_{cb}^r(L_1(\mathbb{G}))$ is a dual Banach algebra. It has a canonical predual $Q^r(L_1(\mathbb{G}))$, which is equal to $C_0(\mathbb{G})$ when \mathbb{G} is co-amenable.
- Finally, we discuss some properties associated with the Banach algebra $LUC(\mathbb{G})^*$.