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The algebra generated by idempotents in a Fourier-Stieltjes algebra

Let G be a locally compact group. The Fourier–Stieltjes algebra $B(G)$ is the dual space of the group C^* -algebra $C^*(G)$, and it can be naturally be made into Banach algebra which can be identified with a subalgebra of the bounded continuous functions on G . If G is abelian, then $B(G)$ is exactly the algebra of Fourier–Stieltjes transforms of measures on the dual group. As such, $B(G)$ is a large commutative Banach algebra and, frequently, has an intractable spectrum and is not regular.

We consider the closed span of the idempotents in $B(G)$, $B_I(G)$. Even for totally disconnected groups, $B_I(G)$ is a regular Banach algebra. M. Ilie and I have computed the spectrum of $B_I(G)$, and characterised, for another locally compact group H , when $B_I(G)$ is isometrically algebraically isomorphic to $B_I(H)$. We have also computed some examples. This represents an application of the “spine” of $B(G)$, which we defined previously, and has a nice application in amenability theory.