Maximal ideals in the noncommutative Schwartz space

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Abstract

Let s be the (nuclear) Fréchet space of rapidly decreasing sequences. It has natural function space representations as, e.g. the space $C^\infty(M)$ of smooth functions on a smooth, compact manifold or the Schwartz space $\mathcal{S}(\mathbb{R})$ of test functions for tempered distributions. When equipped with the coordinatewise multiplication it becomes a commutative Fréchet lmc algebra. Recently its noncommutative anologue, $\mathcal{S}$, has received resonable attention. During the talk we will briefly present what is known already, e.g. results on automatic continuity and amenability. The main point however will be to show that maximal ideals of $\mathcal{S}$ are closed. We will also provide examples of dense, non-maximal ideals. This is a part of an ongoing project aiming at investigating the algebraic structure of the noncommutative Schwartz space.