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Automorphisms and derivations of the p-Volterra algebras and p-weighted convolution algebras

Let $1 \leq p < \infty$ and $V_p = L^p[0,1]$ be the Lebesgue space of p-integrable functions on $[0,1]$. The space V_p can be made into a (radical) Banach algebra with the convolution product

$$(f \star g)(x) = \int_0^x f(x-y)g(y)dy \quad (\text{a.e. } x \in (0,1), \quad f, g \in V_p).$$

The Banach algebra $V = V_1$ (known as the Volterra algebra) has been the subject of much study. In [1], [2], [3] and [4] derivations and automorphisms of this algebra were studied. This talk is about our recent work on derivations and automorphisms of V_p for $p > 1$, as well as the automorphisms and derivations of the p-version of the weighted convolutions algebras on the half-line. This is joint work with Sandy Grabiner.

References.

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[3] N. P. Jewell, A. M. Sinclair, Epimorphisms and derivations on $L^1(0,1)$ are continuous, *Bull. London Math. Soc.* 8 (1976), no. 2, 135–139.

[4] H. Kamowitz, and S. Scheinberg, Derivations and automorphisms of $L^1(0,1)$, *Trans. Amer. Math. Soc.* 135 (1969) 415–427.