

Essential Commutants of Semicrossed Products

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Abstract. Let $\alpha: G \curvearrowright M$ be a spatial action of countable abelian group on a “spatial” von Neumann algebra M and S be its unital subsemigroup with $G = S^{-1}S$. We explicitly compute the essential commutant and the essential fixed-points, modulo the Schatten p -class or the compact operators, of the w^* -semicrossed product of M by S when M' contains no non-zero compact operators. We also prove a weaker result when M is a von Neumann algebra on a finite dimensional Hilbert space and $(G, S) = (\mathbb{Z}, \mathbb{Z}_+)$, which extends a famous result due to Davidson (1977) for the classical analytic Toeplitz operators.