

## **On factoriality of semidirect product group von Neumann algebras**

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For a countable discrete group  $G$ , the group von Neumann algebra  $L(G)$  is a factor if and only if  $G$  is an 'icc' group. For general locally compact groups, such an intrinsic characterization is a challenging open problem. A large class of examples in the literature of factors coming from non-discrete groups are from semidirect products, where one often gets the freedom of exploiting ergodic theoretic techniques. We will state some recent factoriality results for a class of semidirect product groups  $N \rtimes G$  where  $N$  is an abelian group of Lie type. Factoriality of such groups is integrally connected to the question of ergodicity of linear actions on  $\mathbb{R}^n$ . This talk is based on joint work with Chinmay Tamhankar.