COMPLETED GROUP ALGEBRAS OF FREE-BY-$\mathbb{Z}_p$ PRO-p GROUPS

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Abstract:

The class of finitely generated free-by-$\mathbb{Z}_p$ pro-p groups comprise an important family of pro-p groups of cohomological dimension at most 2, amongst which one can find free pro-p and Dëmushkin groups. In this talk I will present (in joint work with A. Jaikin) how those groups are virtually mild in the sense of Labute and how they are characterized by possessing a very particular type of presentation. Moreover, I will also explain how a strong control of the restricted Lie algebra structure obtained by these presentations allows us to virtually construct an explicit embedding of the completed F_p-group algebra into a division ring. As a corollary, one obtains a virtual solution to the Atiyah conjecture for this class of groups.