

# SEMINÁRIO DE ÁLGEBRA

## Demushkin Groups.

Henrique Souza  
UNB

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Zoom

### Abstract.

Demushkin groups are the pro- $p$  groups satisfying the Poincaré duality in dimension 2, and their class includes the pro- $p$  completions of fundamental groups of hyperbolic surfaces and Galois groups of maximal  $p$ -extensions of  $p$ -adic number fields containing  $p$ -roots of unity. Following the recent articles by M. Shusterman, P. Zalesskii and A. Jaikin-Zapirain, it is possible to fully classify which of those groups satisfies pro- $p$  versions of the following properties:  $FGIP$  (Howson property),  $LR$  (local retractions), M. Hall, the Hanna Neumann inequality,  $L^2$ -independence and  $L^2$ -Hall. This talk will be about those properties in Demushkin groups and their proofs, with a special focus on the last three.