

# COLÓQUIO DE MATEMÁTICA

Quarta-feira, 26 de janeiro de 2022 às 16h00

## Supercharacters: behind and beyond

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Ciências  
ULisboa | Matemática

*Convívio antes do Colóquio na sala dos docentes do C6,  
com café, chá e bolos (15h45 até às 16h00)*

### Abstract:

Describing the conjugacy classes or irreducible characters of the unipotent upper triangular group over a finite field is known to be an impossibly difficult problem. Superclasses and supercharacters have been introduced (under the names of “basic varieties” and “basic characters”) as an attempt to approximate conjugacy classes and irreducible characters using a cruder version of Kirillov’s method of coadjoint orbits. In the past thirty years, these notions have been recognised in several areas (seemingly unrelated to representation theory): exponential sums in number theory, random walks in probability and statistics, association schemes in algebraic combinatorics... In this talk, we will summarise and illustrate the main ideas, applications and recent developments, not only in the finite group case, but also in the more general setting of super-representation theories of unipotent groups defined over locally compact topological fields.