

## Mini-Course on **Characteristic $p$ phenomena in Brauer groups**

Speakers : Martin Bright and Alexander Molyakov

Abstract : Topics to be covered:

Cohomological tools: the Kummer sequence in étale cohomology and flat cohomology; relation to Milnor K-theory; logarithmic differentials; the de Rham–Witt complex.

Ramification: residues, Bloch–Kato filtration on K-theory, Kato’s Swan conductor.

Evaluating elements of the Brauer group: work of Yamazaki (1999) on curves in mixed characteristic; work of Bright-Newton (2023) on mixed characteristic in general.

Introduction to prismatic cohomology.

Work of Valloni (2025) on constructing elements of the Brauer group in characteristic  $p$ .

The lectures will offer some preparation for the talks of Majumder, Newton and Skorobogatov during the April workshop.

Schedule : March 30th, April 1st, April 3rd at 2:30 pm