

**Speaker:** Rachel Newton

**Title:** Counting  $S_4$  and  $S_5$  extensions satisfying the Hasse norm principle

**Abstract.** Let  $L/K$  be an extension of number fields. The norm map  $N_{L/K} : L^* \rightarrow K^*$  extends to a norm map from the ideles of  $L$  to those of  $K$ . The Hasse norm principle is said to hold for  $L/K$  if, for elements of  $K^*$ , being in the image of the idelic norm map is equivalent to being the norm of an element of  $L^*$ . The frequency of failure of the Hasse norm principle in families of abelian extensions is fairly well understood, thanks to previous work of Christopher Frei, Daniel Loughran and myself, as well as recent work of Peter Koymans and Nick Rome. In this talk, I will focus on the non-abelian setting and discuss joint work with Ila Varma on the statistics of the Hasse norm principle in field extensions with normal closure having Galois group  $S_4$  or  $S_5$ .