

**Speaker:** Tom Tucker

**Title:** Some questions about iterated Galois groups

**Abstract:** Let  $f$  be a polynomial over a global field. Let  $G$  denote the inverse limits of the Galois groups of  $f^n$ , where  $f^n$  denotes the  $n^{\text{th}}$  iterate of  $f$ , and let  $T$  denote the tree of roots of  $f^n$  as  $n$  goes to infinity. Then  $G$  acts on  $T$ . We ask: how much of the theory of Galois actions on Tate modules of elliptic curves carries over into this dynamical context? We provide conjectures, and in some special cases proofs, of analogs of the Serre open image theorem, the Faltings-Tate isogeny theorem, and some theorems from Kummer theory.