1145-11-2722 **Irene Bouw**, **Ozlem Ejder*** (ejder@math.colostate.edu) and **Valentijn Karemaker**.
Arboreal Galois Representations of Dynamical Belyi Maps. Preliminary report.

A dynamical Belyi map is a finite morphism $f : \mathbb{P}^1_{\mathbb{C}} \to \mathbb{P}^1_{\mathbb{C}}$ defined over $\mathbb{C}$ which is branched exactly at the three ordered points $0, 1, \infty$ such that $f(\{0, 1, \infty\}) \subseteq \{0, 1, \infty\}$. All iterates f^n are also Belyi maps. Given a dynamical Belyi map defined over a field K and a non-preperiodic point $\alpha \in K$, one can construct a tree of preimages of α. This construction leads to the phenomena: one has a tower of fields $K = K_0 \subseteq K_1 \subseteq K_2 \subseteq \cdots$ where $K_n := K(\phi^{-n}(\alpha))$. One also has a natural Galois representation on the tree of preimages, the so-called Arboreal Galois representation of the function f. In this talk, we describe the Arboreal Galois representations and the monodromy groups of iterations of a large class of dynamical Belyi maps. Studying these Galois groups has applications in the study of the density of prime divisors of elements of dynamical sequences. If time allows, we will mention some applications as well. (Received September 25, 2018)