1135-11-2523 **Rafe Jones***, rfjones@carleton.edu, and **Jordan Cahn** and **Jacob Spear**. *Perfect powers in orbits of rational functions over number fields.*

One of the primary aims of the field of arithmetic dynamics is to study number-theoretic questions involving dynamical objects. One such object is the orbit of a point under iteration of a rational function: the sequence $P, f(P), f(f(P)), \ldots$ where f is a rational function with complex coefficients and P is a complex number. If we require f to have coefficients in a number field K, and P also to belong to K, then number-theoretic questions abound. For instance, for a given f, does there exist P whose orbit contains infinitely many algebraic integers? Does there exist P whose orbit contains infinitely many distinct squares in K? I'll discuss how to solve this last problem using Faltings' theorem and other tools from arithmetic geometry. (Received September 26, 2017)