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Rafe Jones* (rjones@holycross.edu), College of the Holy Cross, Worcester, MA 01610, and
Michelle Manes, University of Hawaii-Manoa. *Discriminants and Galois groups for iterated
rational functions*. Preliminary report.

Let f be a rational function of degree two defined over a number field K . In this talk we consider the extensions K_n obtained by adjoining the set $f^{-n}(0)$ to K , with a special interest in computing the Galois group of K_n/K . We show that the critical orbits of f determine the discriminants of the K_n , and these in turn can sometimes be used to show $\text{Gal}(K_n/K)$ is as large as possible. We pay particular attention to the special case where f commutes with a non-trivial Möbius transformation. (Received September 21, 2009)