1127-37-309 **Sarah C. Koch*** (kochsc@umich.edu), Department of Mathematics, University of Michigan, Ann Arbor, MI 48109. *Postcritical sets in complex dynamics.*

In complex dynamics, we are typically interested in iterating a rational map f on the Riemann sphere and studying the orbits of different points under iteration. The orbits of the critical points of f play a very important role in this process. For example, if $f_c(z) = z^2 + c$ possesses an attracting periodic cycle in $\mathbb{C}$, then the critical point $z_0 = 0$ is necessarily attracted to it under iteration. Furthermore, the *filled Julia set* of f_c is connected if and only if the orbit of the critical point is bounded.

The *postcritical set* of a rational map f, denoted P_f, is the union of the orbits of the critical values of f (recall that the critical values of f are precisely the images of the critical points of f). The map f is said to be *postcritically finite* if P_f is finite. In this talk, we study the subsets of the Riemann sphere that arise as P_f for some postcritically finite rational map f. We employ a variety of results to explore this problem, ranging from Belyi's celebrated theorem, to analytic techniques used in the proof of Thurston's topological characterization of rational maps, a central result in the subject.

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