

**Speaker:** Sarah Koch  
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Wednesday, March 18, 2015  
4:00 pm  
Room: 117 Hayes-Healy Hall

**Title:** Galois Invariant Sets in Dynamics

**Abstract:**

In William Thurston's last paper, *Entropy in Dimension One*, he completely characterizes which numbers arise as  $\exp(\text{entropy}(f))$ , where  $f$  is a postcritically finite real map of a closed interval. On page 1 of this paper, there is a spectacular image of a Galois invariant set associated to entropy values of quadratic polynomials. This set displays some amazing fractal structure which can be (somewhat) understood when viewed as a subset of parameter space for a particular family of iterated function systems (IFS). We compare this with the parameter space discussion of the family  $z \mapsto z^2 + c$ , and investigate the associated connectedness locus in parameter space for the IFS. If time permits, we study another Galois invariant subset arising in the dynamical realm which displays similar structure; this set is also associated to postcritically finite quadratic polynomials. Parts of this talk are joint work with D. Calegari and A. Walker, and parts of this talk are joint work with X. Buff and A. Epstein.