

1096-05-2378

Dae Hyun Kim, Alex Mun and Mohamed Omar* (omar@g.hmc.edu), 301 Platt Boulevard, Claremont, CA 91711. *Chromatic Bounds for Orbital Chromatic Roots*. Preliminary report.

Given a group G of automorphisms of a graph Γ , the orbital chromatic polynomial $OP_{\Gamma,G}(x)$ is the polynomial whose value at a positive integer k is the number of orbits of G on proper k -colorings of Γ . In their seminal paper, Cameron et. al. explore the roots of orbital chromatic polynomials, and in particular prove that orbital chromatic roots are dense in \mathbb{R} , extending Thomassen's famous result that chromatic roots are dense in $[\frac{32}{27}, \infty)$. Cameron et al further conjectured that the real roots of the orbital chromatic polynomial of a graph are bounded above by the largest real root of its chromatic polynomial. We resolve this conjecture in the negative, and provide a process for generating families of counterexamples. (Received September 17, 2013)