

A zero-free interval for chromatic polynomials of graphs with 3-leaf spanning trees - DTU Orbit (08/11/2017)

A zero-free interval for chromatic polynomials of graphs with 3-leaf spanning trees

It is proved that if G is a graph containing a spanning tree with at most three leaves, then the chromatic polynomial of G has no roots in the interval $(1, t_1]$, where $t_1 \approx 1.2904$ is the smallest real root of the polynomial $(t-2)^6 + 4(t-1)^2(t-2)^3 - (t-1)^4$. We also construct a family of graphs containing such spanning trees with chromatic roots converging to t_1 from above. We employ the Whitney 2-switch operation to manage the analysis of an infinite class of chromatic polynomials.

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Authors: Perrett, T. (Intern)

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