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Geometric Homomorphisms and the Geochromatic Number

A geometric graph \overline{G} is a simple graph G together with a fixed straightline drawing in the plane. A geometric homomorphism is a homomorphism of the underlying abstract graphs that also preserves edge crossings. Like the chromatic number of an abstract graph, the geochromatic number is defined using homomorphisms: the geochromatic number of a geometric graph \overline{G} is the smallest integer n so that there is a geometric homomorphism from \overline{G} to some geometric realization of K_n . This talk will consider conditions under which we can find or bound the geometric chromatic number of a geometric graph.