Scott's Conjecture for the Bull
(and a Few Other Graphs)

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Abstract: A class $\mathcal{G}$ of graphs is χ-*bounded* if there is a function $f : \mathbb{N} \to \mathbb{N}$ such that for all $G \in \mathcal{G}$, $\chi(G) \leq f(\omega(G))$. χ-bounded classes of graphs were introduced in 1987 by András Gyárfás as a generalization of the class of perfect graphs. Gyárfás conjectured that for any tree T, the class of graphs that do not contain T as an induced subgraph is χ-bounded. In 1997, Alex Scott proved a 'topological' version of this conjecture: for any tree T, the class of graphs that do not contain any subdivision of T as an induced subgraph is χ-bounded; he then conjectured that for every graph H, the class of graphs that do not contain any subdivision of H as an induced subgraph is χ-bounded. In this talk, I will present a proof of Scott's conjecture for the case when H is the *bull* (i.e. the 5-vertex graph that consists of a triangle and two vertex-disjoint pendant edges), along with some generalizations.

Joint work with Maria Chudnovsky, Alex Scott, and Nicolas Trotignon