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Gareth Tracey: The Goldschmidt-Sims conjecture

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The Classification of Finite Simple Groups has led to substantial progress on deriving sharp order bounds in various natural families of finite groups. One of the most well-known instances of this is Sims' conjecture, which states that the order of a point stabiliser in a primitive permutation group has order bounded in terms of its smallest non-trivial orbit length (this was proved by Cameron, Praeger, Saxl and Seitz using the CFSG in 1983). In the meantime, Goldschmidt observed that a generalised version of Sims' conjecture, which we now call the \emph{Goldschmidt–Sims conjecture}, would lead to important applications in graph theory. In this talk, we will describe the conjecture, and discuss some recent progress. Joint work with L. Pyber.