

Undecidability of the word problem for one-relator inverse monoids

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In this talk I will speak about a recent result (see <https://arxiv.org/abs/1902.03822>) which shows that there are one-relator inverse monoids of the form $\text{Inv}\langle A \mid w = 1 \rangle$ with undecidable word problem. This result answers a problem originally posed by Margolis, Meakin and Stephen in 1987. I will explain how this result relates to the submonoid membership problem for one-relator groups, and to the question of which right-angled Artin groups arise as subgroups of one-relator groups. If time permits, I will also explain how the general construction introduced in this paper can be used to construct other examples of finitely presented inverse monoids with unexpected and interesting behaviour.