Categorical nilpotent QE-groups and computability

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G. Cherlin, D. Saracino and C. Wood have constructed an uncountable family of ω-categorical nilpotent groups (see *Proc. Amer. Math. Soc.* **119** (1993), 1298–1306) which can be considered as generic representatives of the gap still left in the classification of all solvable groups having elimination of quantifiers.

I have found that for every Turing degree **d** there is a group G of this family such that **d** is the least degree of the members of the isomorphism type of G. It is also possible to find G in the family such that the isomorphism type of G has no degree (i.e. there is no least degree representing groups of the type).

In the second part of my talk I am going to discuss the related question of nice enumerability of these groups. Nice enumerations of ω-categorical structures were introduced by G. Ahlbrandt and M. Ziegler in 1986 and were used as a tool for quasifinite axiomatizability of almost strongly minimal ω-categorical structures. The notion has been applied in several places of model theory since then. E. Hrushovski has refined it as follows. An ω-ordering $\prec$ of a countable structure M is an *AZ-enumeration* if for any n and any sequence $(\bar{a}_i : i \in \omega)$ of n-tuples from M there are $i < j$ and some $\prec$-preserving elementary map $f : M \to M$ such that $f(\bar{a}_i) = \bar{a}_j$.

We (together with K. MAJCHER) have found that the family of ω-categorical nilpotent QE-groups constructed by G. Cherlin, D. Saracino and C. Wood contains groups without AZ-enumerations (it was not known before if there were structures without AZ-enumeration).