The powers of simple algebras

Peter Mayr[1]
University of Colorado Boulder & University of Linz

Foster (1953) showed that the variety generated by a primal algebra (where all operations are induced by terms) is just the class of its Boolean powers. Even though any finite simple non-abelian Mal'cev algebra **A** is functionally complete (all operations are induced by polynomials), the variety generated by **A** is much less understood.

We note that the class K of finite direct powers of such an **A** has the joint embedding property (JEP) and the amalgamation property (AP) but in general not the hereditary property (HP). There exists a (generalized) Fraïssé limit of K which we can describe as a filtered Boolean power of **A**. We discuss combinatorial properties of this Fraïssé limit, characterize its congruence lattice and its automorphism group.

[1]Joint work with Nik Ruškuc (University of St Andrews).