Unilinear Residuated Lattices

Nikolaos Galatos (*University of Denver*)
Xiao Zhuang (*University of Denver*).

We characterize all residuated lattices that have height equal to 3 and show that the variety they generate has continuum-many subvarieties. More generally, we study unilinear residuated lattices: their lattice is a union of disjoint incomparable chains, with bounds added. We give two general constructions of unilinear residuated lattices, provide an axiomatization and a proof-theoretic calculus for the variety they generate, and prove the finite model property for various subvarieties.