1126-08-241 **Andrew P. Moorhead*** (`andrew.moorhead@colorado.edu`). *Higher Commutator Theory for Congruence Modular Varieties.*

A general binary commutator theory for a universal algebra was developed in the seventies and eighties. This theory was found to be as powerful as the theory of the ordinary commutator for groups in the context of a congruence modular variety. Bulatov generalized this commutator to a commutator of higher arity at the beginning of the century, thereby identifying a tool that allows for finer distinctions than those possible with the binary commutator. Recent work of the author demonstrates that the theory of this higher commutator is as powerful as that of the binary commutator for congruence modular varieties. The first portion of this talk will be a survey of these results.

A fundamental result in the theory of the binary commutator for congruence modular varieties is the classification of the abelian algebras, or more generally the abelian congruences of an algebra, as those structures that are affine. This classification follows from the observation that the difference term becomes a Mal'cev operation on equivalence classes and that this operation is a homomorphism. The second portion of this talk will discuss results that generalize these ideas to higher dimensions. (Received January 15, 2017)