Problems on the Frontier of Commutator Theory

Keith A. Kearnes

University of Colorado, Boulder Keith.Kearnes@Colorado.EDU http://spot.colorado.edu/~Kearnes

Within universal algebra a precise definition of an abelian/nonabelian dichotomy for algebras and congruences crystallized in the 1970's. The definition was developed into a commutator theory extending that of groups. This tool allows one to import ideas from group theory into other areas, but it has developed beyond that to include original concepts, such as strong abelianness, higher commutator theory and supernilpotence. I will discuss these developments and identify the line between what is known and what is open.