Erik Mainellis* (ekmainel@ncsu.edu). *Factor Systems and the Second Cohomology Group of Leibniz Algebras.*

Factor systems are a tool for working on the extension problem for algebraic structures such as groups, Lie algebras, and Leibniz algebras. We construct the Leibniz-analogue to a series of group-theoretic results from W. R. Scott’s Group Theory. Fixing a pair of Leibniz algebras $A$ and $B$, we develop a correspondence between factor systems and extensions of $A$ by $B$. This correspondence is strengthened by the fact that equivalence classes of factor systems correspond to those of extensions. Under this correspondence, central extensions give rise to 2-cocycles while split extensions give rise to 2-coboundaries. We thus have a notion of the second cohomology group of $A$ with coefficients in $B$. (Received July 06, 2021)