1056-11-384   **Alexandru Buium*** (`buium@math.unm.edu`), Department of Mathematics and Statistics, University of New Mexico, Albuquerque, NM 87131. *Groups defined by arithmetic differential equations.*

Groups defined by algebraic differential equations (differential algebraic groups) were introduced by Cassidy and Kolchin. Their study is intertwined with diophantine problems over function fields. On the other hand one can consider an arithmetic analogue of differential equations in which the derivative operator is replaced by a Fermat quotient operator. Correspondingly one may consider groups defined by arithmetic differential equations and study their properties with an eye on applications to diophantine problems over number fields. The talk is devoted to explaining this circle of ideas. (Received September 03, 2009)