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Greg Reid*, Applied Mathematics Department, University of Western Ontario, Room MC 255, London, Ontario N6A 5B7, Canada. *Characterization and computation of nearby involutive polynomial and differential systems*. Preliminary report.

Most work with differential and polynomial systems has concentrated on exactly given systems (e.g. with rational coefficients). In this presentation we consider polynomial (and differential) system with approximate coefficients. We characterize nearby involutive systems, using methods arising from the Jet geometry of partial differential equations. A procedure is given for their computation, provided certain stability requirements are satisfied. Examples of the surprisingly rich phenomena for such systems are given. This area lies at the intersection of geometry, algebra and numerical analysis. (Received September 22, 2005)