MATH 7329 - Topological and Algebraic Methods in Nonlinear Differential Equations

MATH 7329 Topological and Algebraic Methods in Nonlinear Differential Equations (3 semester credit hours) This course covers Polynomial homogeneous systems of ODEs, Poincare index, elliptic, hyperbolic and parabolic sectors, Bendixson formula, classification of plane quadratic systems, Riccati equation in non-associative commutative algebras, nilpotents and equilibria, idempotents and ray solutions, complex structures in algebras and bounded/periodic regimes, applications to Kasner equation, Euler equation and second order chemical reactions. Prerequisite: MATH 6315. (3-0) T (2016-02-05 23:34:04)