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James E Freitag* (freitagj@gmail.com), 15335 Magnolia BLVD, 114, Sherman Oaks, CA 91403, and **Rahim Moosa**. *Around the Jouanolou-Hrushovski-Ghys Theorem*.

Given a smooth variety and a vector field, a theorem of Jouanolou relates the existence of enough integrable hypersurfaces for a given Pfaffian equation the existence of meromorphic first integrals. The theorem was later generalized by Hrushovski and applied to differential algebraic geometry. Ghys also later generalized Jouanolou's theorem and provided a simplified proof.

Hrushovski used his generalization of Jouanolou's theorem to prove that if a system of ordinary differential equations with constant coefficients has infinitely many co-order one subvarieties, then there is a nonconstant differential rational map from the solution set to the constants.

We generalize the Jouanolou-Hrushovski-Ghys Theorem to a form suitable for application to partial differential equations, and establish the analog of Hrushovski's result in that setting. We also generalize the Hrushovski's theorem to include systems of differential equations with nonconstant coefficients. (Received September 09, 2015)