

Meeting: 1003, Atlanta, Georgia, SS 37A, AMS Special Session on In the Wake of Jacobi and Hamilton 200 Years Later, I

1003-39-1441 **Stephane Lafortune*** (lafortunes@cofc.edu), Department of Mathematics, College of Charleston, Charleston, SC 29424, and **Alain Goriely**. *Singularity Confinement and Algebraic Integrability*.

Two important notions of integrability for discrete mappings are algebraic integrability and singularity confinement, have been used for discrete mappings. Algebraic integrability is related to the existence of sufficiently many conserved quantities whereas singularity confinement is associated with the local analysis of singularities. In this work, the relationship between these two notions is explored for birational autonomous mappings. Two types of results are obtained: first, algebraically integrable mappings are shown to have the singularity confinement property. Second, a proof of the non-existence of algebraic conserved quantities of discrete systems based on the lack of confinement property is given. (Received October 05, 2004)