8th International Conference on Symmetries and Integrability of Difference Equations (SIDE8) **June 22–28, 2008**
8^e *Conférence internationale "Symétrie et intégrabilité des équations aux différences"* (SIDE8) **22–28 juin, 2008**

Singularity analysis and Hirota bilinear form for ultra-discrete equations

Stéfane Lafortune
Department of Mathematics
College of Charleston
RSS room 339
Charleston, SC 29424
USA

lafortunes@cofc.edu

Abstract

Ultra-discrete equations are generalized cellular automata in the sense that the dependent (and independent) variables take only integer values. We present a method to identify integrable ultra-discrete equations which is the equivalent of the singularity confinement property for difference equations and the Painlevé property for differential equations. We then show that it is possible to use this method to obtain the Hirota bilinear form of ultra-discrete Painlevé equations.

This is a joint work with Nalini Joshi, Sydney University.