1100-39-142 **Lucia Di Vizio** (`divizio@math.cnrs.fr`), Laboratoire de Mathématiques CNRS UMR 8100, UVSQ, 45 avenue des Etats-Unis, 78035 cede Versailles, France, **Charlotte Hardouin\*** (`hardouin@math.univ-toulouse.fr`), University Paul Sabatier, 31062 Toulouse, France, and **Michael Wibmer**, Lehrstuhl fur Mathematik (Algebra), RWTH Aachen, 52056 Aachen, Germany. *A Galoisian interpretation of discrete integrability.*

We will detail some applications of Galois theory of linear differential equations, equipped with a discrete action on "parameters". In this theory, the Galois groups are difference algebraic groups and they control the possible difference algebraic relations between the solutions of a given linear differential system. We will focus on examples and show how contiguity relations, Frobenius structure for p-adic differential equations, semi-discrete equations as well as discrete isomonodromy can be understood in terms of the parametrized Galois group. We will conclude with some classification theorems for difference algebraic groups and their application to discrete integrability. (Received February 06, 2014)