

## **The exact discrete Lagrangian function on a Lie groupoid**

Juan C Marrero, University of La Laguna

In this talk, I will present some ideas related with the geometric structure of discrete mechanical systems in the setting of Lie groupoids. We will see that a convexity theorem holds for a second order differential equation on an integrable Lie algebroid. Using this construction and in the presence of a regular continuous Lagrangian function on an integrable Lie algebroid, we will introduce the exact discrete Lagrangian function on the corresponding Lie groupoid. Some future applications of this construction will be also presented.