

1143-53-316

David Martin de Diego* (david.martin@icmat.es), ICMAT, Campus de Cantoblanco, UAM, C/ Nicolas Cabrera, 15, 28049 Madrid, Spain, and **Rodrigo Takuro Martin de Almagro**.

Variational order for forced Lagrangian discrete dynamics.

In this talk, we will discuss how to derive the equations of motion for forced mechanical systems in a purely variational setting, both in the context of Lagrangian or Hamiltonian mechanics, by duplicating the variables of the system. Moreover, we show that this construction is useful to design high-order integrators for forced Lagrangian systems and, more importantly, we give a characterization of the order of a method applied to a forced system using the corresponding variational order of the duplicated one. (Received August 17, 2018)