A VARIATIONAL DERIVATION OF THE FORCED EULER-LAGRANGE EQUATIONS AND APPLICATIONS TO ERROR ANALYSIS

MARTÍN DE DIEGO, DAVID AND SATO MARTÍN DE ALMAGRO, RODRIGO T.

Abstract. In this talk, we will show a variational derivation of the forced Euler-Lagrange and Euler-Poincaré equations using a duplication of variables technique [1, 2]. We will show that the underlying geometry is related with the notion of a Poisson groupoid. Finally, we will discuss an application to the variational construction of geometric integrators for forced systems and the corresponding error analysis [3].

References

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[3] D. Martín de Diego and R. T. Sato Martín de Almagro. Variational order for forced Lagrangian systems. *Nonlinearity*, 31(8):3814–3846, 2018.

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