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**Marta Farre Puiggali\*** (mfarrepu@umich.edu). *Stabilization of controlled Lagrangian systems using the inverse problem.*

The inverse problem of the calculus of variations consists in determining whether or not a given system of second order differential equations is equivalent to some regular Lagrangian system. I will first introduce the inverse problem briefly and then we will see how to apply some of its results to the stabilization of controlled Lagrangian systems. (Received January 26, 2019)