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Hamiltonian Systems on Contact Manifolds

In this talk, we will discuss dissipative Hamiltonian systems in the framework of contact manifolds. Indeed, the symplectic setting is no longer appropriate for this kind of dynamical systems. First, we prove a coisotropic reduction theorem in the context of contact manifolds, then we describe a dissipative Hamiltonian system as a Legendrian submanifold of a special contact manifold, and then consider several examples. We also discuss an analogue of the symplectic Marsden–Weinstein reduction theory in the context of contact manifolds.

Manuel de León got his Master Degree from the University of Santiago de Compostela (Galicia) and then the Ph.D. degree from the same University in 1978. His work has been mainly devoted to the study of differential geometry and its applications to mechanics and mathematical physics (resulting in more than 200 papers and 3 monographs). He is currently a member of a number of editorial boards and scientific committees and Editor-in-Chief of Journal of Geometric Mechanics (AIMS). Research Professor in the Consejo Superior de Investigaciones Científicas (CSIC), he was Chief of the Department of Mathematics (CSIC), 2000–2007; and also the Vice-Director of the Institute of Mathematics and Fundamental Physics (CSIC), 1992–1998.

He was the founder of the Instituto de Ciencias Matemáticas, a joint research institute between the CSIC and three Universities of Madrid, UAM, UCM and UC3M, and its Director for eight years.

He founded the series of International Fall Workshops on Geometry and Physics.

He was founder and Vice-President of the Real Sociedad Matemática Española (RSME), Director of La Gaceta de la RSME (1998–2004), and Coordinator of the Spanish Committee for the World Mathematical Year 2000.

He was the President of the Spanish Committee for Mathematics, 2004–2007, Chair and President of the International Congress of Mathematicians ICM 2006-Madrid, and a member of the Executive Committee of the International Mathematical Union (2007–2014).

