



Thematic Research Programme

ethods in Natural Sciences

2 September - 20 December 2019 **ICMAT, Madrid** www.icmat.es/RT/2019/CTIGMINS/

Seminar

A CHARACTERIZATION OF 3D STEADY EULER FLOWS USING COMMUTING VORTEX HOMOLOGIES

SPEAKER: Francisco Torres de Lizaur (MPI Bonn)

DATE: Wednesday, 2 October 2019 - 15:00

VENUE: Aula Gris 1, ICMAT

ABSTRACT: I will show how to characterize those volume-preserving vector fields on a 3-manifold that are steady solutions of the Euler equations for some Riemannian metric. For a given vector field, the existence of such a metric depends on the existence of a limit to the precision with which the asymptotic cycles can be approximated by certain classes of loops. This extends Sullivan's characterization of geodesible flows in the volume preserving case. As an application I will prove that Euler flows cannot be constructed using plugs. This is joint work with Daniel Peralta-Salas and Ana Rechtman

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