



Departamento de Matemática Aplicada

Seminario
Matemática Aplicada - UCM

CONFERENCIA INAUGURAL. Curso 2015-2016

12:00 h. Jueves 12 de noviembre de 2015

Facultad de CC. Matemáticas
Sala 209. Seminario Alberto Dou

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**“ CURVES AND SURFACES WITH CONSTANT NONLOCAL
MEAN CURVATURE ”**

Abstract:

We are concerned with hypersurfaces of \mathbb{R}^n with constant nonlocal (or fractional) mean curvature. This is the equation associated to critical points of the fractional perimeter under a volumen constraint. Our results are twofold. First we prove the nonlocal analogue of the Alexandrov result characterizing spheres as the only closed embedded hypersurfaces in \mathbb{R}^n with constant mean curvature. Here we use the moving planes method. Our second result establishes the existence of periodic bands or "cylinders" in \mathbb{R}^n with constant nonlocal mean curvature and bifurcating from a straight band. These are Delaunay type bands in the nonlocal setting. Here we use a Lyapunov-Schmidt procedure for a quasilinear type fractional elliptic equation.

(This is joint work with Mouhamed M. Fall, Joan Solà-Morales, and Tobias Weth).

Organiza: Departamento de Matemática Aplicada.