abstract

MATHEMATICAL PHYSICS SEMINAR
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

A corollary of a celebrated theorem of Nash and Kuiper is the existence of C^1 isometric embeddings of the standard 2-sphere in arbitrarily small balls of the euclidean 3-d space. On the contrary, the image of C^2 isometric embeddings are all the same up to translations. $C^{1,\alpha}$ isometric embeddings share the first flexibility property if α is close to 0 and they are instead rigid if α is sufficiently close to 1. This and similar theorems were claimed by Borisov in 1963, who then published several papers with the proofs of some of them.

In a recent joint work with L´aszl´o Sz´ekelyhidi and Sergio Conti we give a shorter proof of all the results announced by Borisov, improving upon some of his hypotheses. Our interest in the problem comes from a conjecture of Onsager, which states the same phenomenon for the solutions of the Euler equations and was motivated by considerations in the theory of fully developed turbulence. Our proof of the rigidity statement has striking similarities with the proof of the corresponding □rigidity□ result for Euler, due to Eyink and Constantin, E and Titi.