



ΕΒΔΟΜΑΔΙΑΙΑ ΣΕΜΙΝΑΡΙΑ ΤΜΗΜΑΤΟΣ ΜΑΘΗΜΑΤΙΚΩΝ

Curvature Invariants of Submanifolds

Ion Mihai

Faculty of Mathematics and Computer Science, University of Bucharest, Romania

The famous Nash embedding theorem was aimed for in the hope that if Riemannian manifolds could be regarded as Riemannian submanifolds, this would then yield the opportunity to use extrinsic help. However, as late as 1985, this hope had not been materialized. The main reason for this is due to the lack of controls of the extrinsic properties of the submanifolds by the known intrinsic invariants. In order to overcome such difficulties as well as to provide answers to an open question on minimal immersions, B.Y. Chen introduced in the early 1990's new types of curvature invariants, known as the δ -invariants or the so-called Chen invariants, different in nature from the "classical" Ricci and scalar curvatures. At the same time he was also able to establish general optimal relations between the new intrinsic invariants and the main extrinsic invariants for Riemannian submanifolds, known as Chen inequalities. Since then many results concerning these invariants, inequalities, related subjects, and their applications have been obtained by many geometers.

Chen inequalities provide obstructions to the existence of minimal, Lagrangian and other special classes of submanifolds.

The main purpose of this lecture is to present some results over this very active field of research done during the last fifteen years. Several related inequalities and their applications are presented as well.

Αίθουσα Σεμιναρίων Τμήματος Μαθηματικών • Τετάρτη, 9 Απριλίου 2014, 17:30