Time table: Week 2

Day	10:00-11:15	11:30-12:45	14:00-15:15	15:30 - 16:45
08/07/2013	D M Pancholi	M. Dutta	S.Venugopalan	
09/07/2013	M. Dutta	D.M. Pancholi	S.Venugopalan	G.Bharali
10/07/2013	M. Dutta	G.Bharali	S.Venugopalan	G.Bharali
11/07/2013	M. Dutta	G.Bharali	D.M. Pancholi	S.Venugopalan
12/07/2013	S.Venugopalan	D.M. Pancholi	M.Dutta	

Course details:

#### Introduction to *h*-principle

# M. Dutta and D. M. Pancholi

### Abstract

The aim of this course is to introduce the notion of *h*-principle and discuss in detail its various applications to symplectic and contact geometry.

## An introduction to plurisubharmonic functions and Stein manifolds

# Gautam Bharali

### Abstract

Stein manifolds are generalizations of pseudoconvex domains in complex Euclidean space. The latter are, loosely speaking, the complex analogues of convex open sets. In characterizing pseudoconvex domains, one discovers a natural symplectic geometry related to the notion of pseudoconvexity and of Stein manifolds.

This set of lectures is meant to be an introduction to Stein manifolds and some of their properties. We shall begin by looking at pseudoconvex domains. We shall see sketches of the proof of the characterization of these domains. In the process, we shall encounter the notion of plurisubharmonicity. Plurisubharmonic functions are central to the definition of Stein maniflods. Hence, we shall devote some time to the discussion of plurisubharmonic functions and their properties. We shall then explore some properties of Stein manifolds.

If time permits, we shall discuss the contact structure that the boundary of a strictly pseudoconvex domains is naturally endowed with (and which is the key to the connection between symplectic geometry and Stein complex structures).

#### Introduction to contact geometry.

### S. Venugopalan

#### Abstract

This course is an introduction to contact geometry starting with basic definitions. We look at Gray stability, Darboux theorem and other neighbourhood theorems for contact manifolds. Next, we spend some time looking at knots in 3-manifolds - especially Legendrian knots. In the last part, we study contact surgery by attaching a symplectic handlebody.