Eleventh NRW Topology Meeting – Bielefeld (Germany)

Friday, May 08, 2009

15.30, Hörsaal 3

Selman Akbulut (East Lansing, Michigan): **"Corks, Plugs and exotic structures on 4-manifolds"**

It is known that every exotic smooth structure of a given closed simply-connected smooth 4-manifold is determined by a codimention zero compact contractible Stein submanifold W, and an involution f on its boundary. Such a pair (W,f) is called a Cork. Plugs are very different kind of small codimension zero Stein submanifolds, which can also be used to make the underlying smooth structure exotic. Corks generalized Mazur manifolds, whereas Plugs generalize 'Gluck construction'. In this talk I will discuss some examples of Corks and Plugs, and also show that by inflating them in two different ways we can construct small exotic Stein manifold pairs. Also, I will show examples of infinitely many (knotted) imbeddings of a fixed cork in a 4-manifold such that they induce infinitely many different exotic structures (this talk mostly summarizes recent joint work with Yasui, and the previous joint work with Matveyev). e.g. http://arxiv.org/pdf/0807.4248.pdf, http://arxiv.org/pdf/0806.3010v3.