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DOLGACHEV SURFACES

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Abstract

Are there exotic copies of S^4 or CP^2 ? It is known that if they exist they must contain 1- or 3-handles. About 25 years ago Donaldson gave the first example of an exotic smooth 4-manifold, i.e. he proved that Dolgachev's complex surface $E(1)_{2,3}$ is an exotic copy of $CP^2 \# 9(-CP^2)$; right about the same time Harer Kas and Kirby wrote a book about $E(1)_{2,3}$ where they conjectured that it must contain 1- or 3-handles. We will discuss the recent solution of this conjecture (in the negative). In this context we will relate the proof to "corks" and "plugs", which are roughly freely floating particles in 4-manifolds determining their exotic structures.

Date: Friday, December 17, 2010

Time: 14:00

Place: IMBM Seminar Room, Boğaziçi University