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Course meets: TuTh 2:30- 4:00 PM, A-304 WH
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Topics in Topology, 996 Spring/2015

I will discuss 2 topics. For introduction of both of these topics I will use my book manuscript **(1)**. The first topic will be on Lefschetz fibration and exotic 4-manifold constructions (Chapters 7-10), with the ultimate goal of explaining absolutely exotic 4-manifolds with boundary exists **(2)**. The second topic will be on Seiberg-Witten theory (Chapter 13), with the ultimate goal of understanding Ciprian Manolescu's recent big theorem, which implied that non-triangulable manifolds exist. This second part requires fair amount of ODE's (Conley index theory) and PDE's (elliptic estimates) which I am not an expert of, so I suggest we all start reading his papers now: **(3)**, **(4)**. It looks like they are based on the deep work in his senior thesis (as an undergraduate!) **(5)**. I will ask students to present some of these material in the class (BTW Manolescu will be giving a mini-course on his theorem in the next Gokova Conference in May **(6)** which there is some NSF support available for grad students to attend this conference).

(1) `http://www.math.msu.edu/~akbulut/papers/akbulut.lec.pdf`
(2) `http://arxiv.org/pdf/1410.1461v2.pdf`
(3) `http://arxiv.org/pdf/1308.6366v3.pdf`
(4) `http://arxiv.org/pdf/1303.2354v3.pdf`
(5) `http://arxiv.org/pdf/math/0104024v4.pdf`
(6) `http://gokovagt.org/2015/`