## Mathematics Colloquium

### **12** December 16h15

Room: 1-15 Section of mathematics rue du Conseil-Général 7-9



# (MIT) Forty years of Four Manifolds

Since the twin breakthroughs in 1982-83 by Freedman and Donaldson the study of four manifolds has been developing rapidly. Freedman's resolution of the 4d topological Poincaré conjecture and refinements combined with Donaldson's surprising applications of the Yang-Mills equations to show that the situation for smooth structures in dimension 4 was more complicated than in higher dimensions. Since then new theories including Seiberg-Witten equations, Ozsvath and Szabó's Heegaard Floer theory, Embedded Contact Homology emerged and

have led to surprising applications to question in 3 and 4 dimensional topology. This talk will survey some of these developments.

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### FACULTÉ DES SCIENCES SECTION DE MATHÉMATIQUES

