Oberwolfach Workshop

Date: **14 Feb - 20 Feb 2016** (ID: 1607a)

Title: **Topological Recursion and TQFTs**

Organisers:

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Abstract:

The topological recursion is an ubiquitous structure in enumerative geometry of surfaces and topological quantum field theories. Since its invention in the context of matrix models, it has been found or conjectured to compute intersection numbers in the moduli space of curves, topological string amplitudes, asymptotics of knot invariants, and more generally semiclassical expansion of topological quantum field theories. This field develops rapidly and this workshop would be a way to bring together people with various background to learn recent advances and discuss the hot topics in the area. At present, we see three exciting axes that should shape the workshop :

(1) the development of the theory of the topological recursion, including a better understanding of its geometry and generalizations in the context of D-modules and non-commutative algebraic geometry;

(2) the relation between topological recursion and the approach of geometric quantization, and their interplay with integrability, with a view towards quantum invariants of 3-manifolds ;

(3) the applications to enumerative geometry (maps and hypermaps, Hurwitz numbers, Gromov-Witten and Donaldson-Thomas invariants, mirror symmetry, …) and computations of volumes of moduli spaces.