IMBM istanbul matematiksel bilimler merkezi
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Mini-course on the use of category theory in topological field theory

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Monday, September 16, 2019

09:30 - 12:00: Part-I An Introduction to Category Theory
In this part of the series, we shall present main ingredients of category theory, such as definitions of a category, functors, natural transformations, subcategories, equivalence of categories, functor of points, representable functors and Yoneda's lemma, universal properties and fibred products etc., together with a number of examples and side remarks. If time permits, we would like to provide a glimpse to the concept of higher category by investigating, in a rather informal way, the notion of *a 2-category* as a toy model.

Tuesday, September 17, 2019

09:30 - 12:00: Part-II Algebro-geometric Formulation of a Field Theory
In this part of the series, we shall first recall how to define a naïve and algebro-geometric version of a classical field theory in Lagrangian formalism, and that of a quantum field theory in path integral formalism along with some examples. In that respect, our discussion related to classical part of the story is mainly based on Mnev's lectures, and for the quantum part we shall follow Gwilliam's paper. In particular, we shall investigate main aspects of Chern-Simons theory in more detailed fashion.

Place : IMBM Seminar Room, Boğaziçi University South Campus