SEMPARIS – Séminaires en région parisienne

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Seed Seminar of Mathematics and Physics

Mercredi 17 Janvier 2024, 16 :30
IHP, Maryam Mirzakhani (a.k.a. Salle 201 on 2nd floor)(Kick-off event for the trimester "From discrete models to condensed matter". To attend in-person, register at : indico.math.cnrs.fr/event/11013/registrations.)
Domaines : math-ph

Titre : *Partition function for string-net models*

Orateur : **Anna Ritz-Zwilling (LPTMC - Sorbonne Université)**

Résumé : *The string-net models were introduced by Levin and Wen (1) as exactly solvable models of topological order in two dimensions. The latter appears in strongly interacting or frustrated systems and is characterized by the presence of point-like excitations, called anyons, with exotic (i.e. neither fermionic nor bosonic) exchange statistics. Built from a unitary fusion category, the string-net models realize a topological order corresponding to the Drinfeld center of the category. The energy spectrum of these models is trivial but the degeneracies are not. In particular, they depend on the genus of the surface on which the model is defined. After introducing the models, I will show how to compute these degeneracies and obtain the exact partition function of these models, opening the way to their study at finite temperature (2, 3).*

(1) M. A. Levin and X.-G. Wen, Phys. Rev. B 71, 045110 (2005)
(2) J. Vidal, Phys. Rev. B 105, L041110 (2020)
(3) A. Ritz-Zwilling, J.-N. Fuchs, J. Vidal, S. H. Simon, https ://arxiv.org/abs/2309.00343