Contribution ID: **1** Type: **not specified**

Framed BPS States In Two And Four Dimensions

Monday 27 June 2016 09:30 (50 minutes)

This talk has four parts. Part one reviews the derivation of the Kontsevich-Soibelman wall-crossing formula for BPS degeneracies in four-dimensional theories with N=2 supersymmetry using framed BPS states. This follows the papers [ArXiv:1006.0146,1008.0030]. I might also mention briefly a possible generalization under discussion with T. Dimofte and D. Gaiotto. Motivated by this possible generalization the next part turns to two-dimensional theories. Part two reviews the theory of interfaces defined by families of superpotentials in two-dimensional Landau-Ginzburg models with (2,2) supersymmetry, and how this leads to a categorification of both S-wall-crossing (of spectral network theory) and of the Cecotti-Vafa wall-crossing formula. This part reviews some material from [ArXiv:1506.04087] (see [ArXiv: 1506.04086] for a "brief" introduction.) Part three applies the material of part two to the formulation of knot homology proposed by Witten in [ArXix:1101.3216] and developed by Gaiotto and Witten in [ArXiv:1106.4789]. Part three is based on the recent PhD thesis of Dmitriy Galakhov. If time permits, part four reviews a mathematically completely well-defined formulation of vector spaces of framed BPS states for arbitrary 't Hooft-Wilson line defects, valid in the semiclassical regime of arbitrary d=4 N=2 theories with a Lagrangian formulation. Part four is based on [ArXiv:1512.08923] and ongoing work with Daniel Brennan.

Summary

Presenter: MOORE, Gregory (Rutgers University)

Session Classification: Plenary session