

1064-55-64

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Ribbon Graphs and Mirror Symmetry II.

This will be a reasonably self-contained continuation of the talk, Ribbon Graphs and Mirror Symmetry I, in the Special Session on Topology, Geometry and Physics. In this talk, I will focus on examples. The abstract for the first talk is reproduced here.

The moment map of the complex projective plane is a triangle. Generalizing this familiar observation somewhat, I will describe a correspondence between equivariant coherent sheaves on toric varieties and polyhedrally constant sheaves on vector spaces. Specializing to one dimension, I will then describe how to assign a category to a ribbon graph by appropriately gluing sheaves on the real line.

The ribbon graph category is conjecturally equivalent to the Fukaya category of the Riemann surface described by the graph. A glued version of the correspondence above allows us to prove that the ribbon graph category is equivalent to the category of coherent sheaves on a “mirror” algebraic curve.

I will develop the necessary mathematics from a *very* simple example.

This talk is based on joint work with Bohan Fang, Chiu-Chu Melissa Liu, Nicolás Sibilla and David Treumann. (Received August 25, 2010)