

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

HOMOLOGICAL MIRROR SYMMETRY FOR OPEN RIEMANN SURFACES FROM PAIR-OF-PANTS DECOMPOSITIONS

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Math/Computer Science, Room 148
111 Cummington Street, Boston

Tea: 3:45pm in Room 144

Abstract: Mirror symmetry is a duality between symplectic and complex geometries, and the homological mirror symmetry (HMS) conjecture was formulated by Kontsevich to capture this phenomenon by relating two triangulated categories.

In this talk, we will prove one direction of the HMS conjecture for punctured Riemann surfaces – the wrapped Fukaya category of a punctured Riemann surface H is equivalent to the category of singularities of the toric Landau-Ginzburg mirror (X, W) , where W is a holomorphic function from X to the complex plane.

Given a Riemann surface with a pair-of-pants decomposition, we compute its wrapped Fukaya category in a suitable model by reconstructing it from those of various pairs of pants. The pieces are glued together in the sense that the restrictions of the wrapped Floer complexes from two adjacent pairs of pants to their adjoining cylindrical piece agree. The A_∞ -structures are given by those in the pairs of pants. The category of singularities of the mirror Landau-Ginzburg model can also be constructed in the same way from a Čech cover by local affine pieces that are mirrors of the pairs of pants. In fact, HMS serves as our guide in developing this sheaf theoretic method for computing the wrapped Fukaya category.

See <http://math.bu.edu/research/geom/seminar.html> or contact Siu Cheong Lau lau@math.bu.edu for more information.