

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

**SPHERICAL AND PROJECTIVE TWISTS:  
FROM DERIVED CATEGORIES TO FUKAYA  
CATEGORIES**

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October 14, 2015, 4:00 – 5:00pm  
Math/Computer Science, Room 148  
111 Cummington Street, Boston

Tea: 3:45pm in Room 144

**Abstract:** It was known for a long time that one may construct autoequivalences through spherical objects and projective objects in a derived category. At least for the projective twist case, such a construction was motivated by a speculation in symplectic geometry about Lagrangian Dehn twists along projective spaces through mirror symmetry.

In this talk, we will exhibit Lagrangian projective twists, as well as all known versions of the famous Seidel's exact sequences, as a consequence of a single cobordism construction. This verifies Huybrechts-Thomas's mirror conjecture for the projective twists. The proof should be considered as a symplectic Fourier-Mukai construction, which is an exact mirror of the complex side. An in-depth study also leads to new autoequivalence constructions in the derived category side, which is an ongoing work. This is a joint project with Cheuk-Yu Mak.

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