

BK Special Lecture Series in Geometry

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Symplectic Torelli Groups for Positive Rational Surfaces

2022년 12월 20일 (화)

Lecture 1. 3pm

Lecture 2. 4pm

과학관 254호

Donaldson (folklore) asked whether Lagrangian Dehn twists always generate the symplectic mapping class groups in real dimension four. So far, all known examples indicate this is true, even though the symplectic Torelli group is generally much larger than the algebraic one. Yet there are only very few cases people could prove this as a theorem.

We will define a notion of "positive rational surfaces", which is equivalent to the ambient symplectic manifolds of (symplectic) log Calabi-Yau pairs. We compute the symplectic Torelli group for the positive rational surfaces and confirm Donaldson's conjecture as a result. We also answer several other questions about the symplectic Torelli groups in dimension 4.

This is joint work with Tian-Jun Li (UMN) and Jun Li (Dayton).

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