Auroux @ Colloq: Homological mirror symmetry for the pair of pants

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(Abouzaid - Efimov - Katzarkov - Orlov)

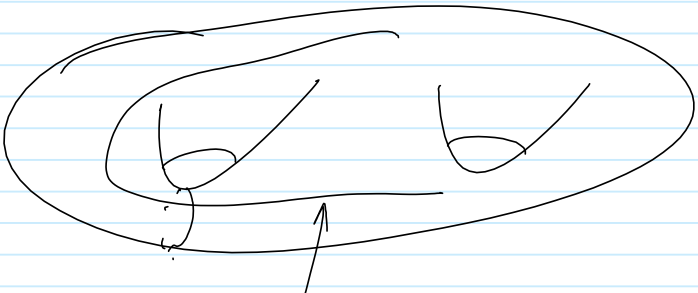
Mirror symmetry: Symplectic geometry "is" algebraic geometry (but on a different space)

Symplectic geom: (M, ω), ω closed non-deg 2-form
like $(\mathbb{R}^{2n}, \sum dx_i \wedge dy_i)$

A Lagrangian submanifold is an n-dim submanifold $L \subset M$ s.t. $\omega|_L \equiv 0$.

Up to Hamiltonian isotopies [which sweep a 0-amount of area rel. ω]

On surfaces:



Lagrangian Floer homology measures intersection of Lagrangians, has a product structure.

Lagrangians make the objects of "Fukaya A_∞ category".

The algebraic side $\check{M}$, coherent sheaves over $\check{M}$

$\longrightarrow$ derived category $\mathcal{D}^b(\check{M})$

should be "derived equivalent" to the symplectic side

⋮

This is a colloquium! Why are we doing this!!