

LECTURE SERIES

# Mathematical Science Literature

March 30, 2021

9:00am ET- *Virtually*



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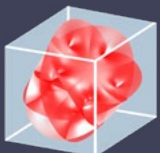
## “On the History of quantum cohomology and homological mirror symmetry”

About 30 years ago, string theorists made remarkable discoveries of hidden structures in algebraic geometry. First, the usual cup-product on the cohomology of a complex projective variety admits a canonical multi-parameter deformation to so-called quantum product, satisfying a nice system of differential equations (WDVV equations). The second discovery, even more striking, is Mirror Symmetry, a duality between families of Calabi-Yau varieties acting as a mirror reflection on the Hodge diamond.

Later it was realized that the quantum product belongs to the realm of symplectic geometry, and a half of mirror symmetry (called Homological Mirror Symmetry) is a duality between complex algebraic and symplectic varieties. The search of correct definitions and possible generalizations lead to great advances in many domains, giving mathematicians new glasses, through which they can see familiar objects in a completely new way.

I will review the history of major mathematical advances in the subject of HMS, and the swirl of ideas around it.

*Talk chair: Paul Seidel*



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