

# MATHEMATICS AND STRING THEORY

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## I. FINAL REPORT ON DOE GRANT DE-FG02-88ER25065

The Principal Investigator wrote several papers covering the following areas:

The continuation of collaboration with Liu and Lian on calculation of  $\Pi A$  model, opens up possibility to understand calculations for higher genus curves also. A lot of detail calculations based on the idea of Liu-Lian-Yau method was carried out by Lian-Liu-Yau. It provides evidence that the method is powerful to calculate GW invariants in many cases. Local mirror symmetry is also worked out by Chiang, Klemm, Zaslow and the principal investigator. It is consistent with what is predicted by physics intuition. Many works were carried out on pushing forward the ideas of Strominger-Yau-Zaslow's geometric version of mirror symmetry in terms of special Lagrangian torus fibration. Several papers were carried out with Zaslow, Leung and others on understanding such duality. It fits beautifully with the predictions. The ideas are still being studied.

## II. LIST OF PUBLICATIONS

DOE Patent Clearance Granted

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2.6.03  
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