Contribution ID: **5** Type: **not specified**

Gopakumar-Vafa invariants via Wilson loops

Tuesday, March 4, 2025 10:00 AM (1 hour)

A compact Calabi-Yau threefold X can be considered to approach a local Calabi-Yau threefold Y in certain limits of Kahler moduli. The enumerative geometry of Y is simpler and physical tools of 5-dimensional gauge theory apply, particularly the use of Wilson loops. A general proposal is made for the structure of the refined BPS numbers of X in terms of refined Wilson loops. Using low degree geometric computation and methods of physics including a refined holomorphic anomaly equation for the Wilson loop partition function, refined BPS numbers of elliptically fibered X are computed for many examples, with $h^{1,1}(X)$ as large as 5. In particular, the unrefined limit produces the Gopakumar-Vafa invariants of X. This talk is based on joint work with Minxin Huang, Albrecht Klemm, and Xin Wang.

Presenter: KATZ, Sheldon (University of Illinois at Urbana-Champaign)