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Junliang Shen* (jlshen@mit.edu), 77 Massachusetts Ave, Building 2, Room 2-232, Cambridge, MA. *Gopakumar-Vafa invariants and the $P=W$ conjecture.*

Perverse sheaves and their associated invariants appear naturally in the study of certain abelian fibrations. A striking example is the $P=W$ conjecture by de Cataldo, Hausel, and Migliorini connecting the topology of Hitchin systems and Hodge theory of character varieties via non-abelian Hodge theory. I will discuss recent progress on the $P=W$ conjecture as well as connections to Gopakumar-Vafa invariants for local Calabi-Yau varieties. (Received September 06, 2019)