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Computations in the algebro-geometric approach to Vafa-Witten theory (Noah Arbesfeld)

Wednesday, 15 February 2023 09:00 (1h 30m)

I'll present Tanaka-Thomas's algebro-geometric approach to Vafa-Witten invariants of projective surfaces. The invariants are defined by integration over moduli spaces of stable Higgs pairs on surfaces and are formed from contributions of components; S-duality implies conjectural symmetries between these contributions.

I'll then explain work in progress with M. Kool and T. Laarakker on the "vertical" or "monopole" component, which can be regarded as a nested Hilbert scheme on a surface. Namely, we apply a recent blow-up identity of Kuhn-Leigh-Tanaka to obtain constraints on Vafa-Witten invariants of the vertical component predicted by Göttsche-Kool-Laarakker. One consequence is a complete formula for refined invariants of this component in rank 2.