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Branes on moduli spaces of sheaves

Branes are special submanifolds of hyperkähler manifolds that play an important role in string theory, particularly in the Kapustin–Witten approach to the geometric Langlands program, but which also are of intrinsic geometric interest. More precisely, a brane is a submanifold of a hyperkähler manifold which is either complex or Lagrangian with respect to each of the three complex structures or Kähler forms composing the hyperkahler structure. Branes on moduli spaces of Higgs bundles have been largely studied by many authors; in this talk, I will summarize recent work done in collaboration with Franco, Marchesi, and Menet on the construction of different types of branes on moduli spaces of Higgs bundles via Nahm transform, of framed sheaves on the projective plane, and on moduli spaces of sheaves on K3 and abelian surfaces.