Formal Sciences Seminar

Branes on the Hitchin system arising from finite order line bundles

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I will explain a recent work, together with E. Franco, P. Gothen and A. Pen-Nieto, where we study the fixed loci on the moduli space $M$ of $GL(n,C)$-Higgs bundles (over a curve) for the action of tensorization by a line bundle of order $n$. This loci is hyperholomorphic and can be equipped with a hyperholomorphic sheaf, hence is a BBB-brane on $M$. Such brane is expected to be dual, via mirror symmetry, to a BAA-brane on $M$, i.e. to a complex Lagrangian subvariety equipped with a flat bundle. We describe such BAA-brane and show that it can described via certain Hecke modifications. Finally we prove the duality statement via explicit Fourier-Mukai transform. It is noteworthy that these branes lie over the singular locus of the Hitchin fibration.