Vortex moduli spaces and Grassmann manifolds

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Vortices are configurations of fields for certain gauge theories on fibre bundles over a Riemann surface Σ. For line bundles, the moduli spaces of these objects are modelled on the space of effective divisors on Σ with a fixed degree, but the generalistion for more complicated targets (typical fibres) is more intricate. In my talk, I shall explain joint work with Indranil Biswas where we use Quot schemes to give a description of the moduli spaces of vortices with target $\mathrm{Mat}_{r \times n}(\mathbb{C})$, for $n \geq r$ and Σ closed. We show that the moduli spaces embed into Grassmannians and this gives rise to interesting geometrical questions. In the "local case" $n = r$, there is a neat description of the moduli spaces using Hecke modifications, which I will also explain if time permits.