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## Moduli of vortices and Grassmann manifolds

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The vortex equations describe stable static configurations of fields in certain gauge theories on Riemann surfaces; they have also played a role in connection with the calculation and generalisation of the GromovWitten invariants in Kähler geometry. I will discuss recent work (joint with Indranil Biswas) based on a Quot-scheme description of the moduli spaces of vortices on a closed surface having the space of complex  $n \times r$  matrices (where  $n \geq r$ ) as target. We describe embeddings of these moduli spaces in Grassmann manifolds, which endow them with Kähler structures of FubiniStudy type. We show that, in certain cases, it is possible to adjust these embeddings in such a way that the resulting Kähler structure realises the class of the  $L^2$  structure of the moduli spaces. The latter is of interest to physicists, as its geodesic flow approximates vortex scattering at low speed.

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