

*Singularities in PDE and the calculus of variations*

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## Dynamics of multiple degree Ginzburg–Landau vortices

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### **Abstract**

For the two-dimensional parabolic complex Ginzburg–Landau equation, we prove that, asymptotically vortices evolve according to a gradient flow of the Kirchhoff–Onsager functional. This convergence holds except for a finite number of times, corresponding to vortex collisions and splittings, which we describe carefully. The only assumption is a natural energy bound on the initial data.

This talk is based on joint works with *Giandomenico Orlandi* and *Didier Smets*.