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Vortex dynamics for the two-dimensional non-homogeneous Gross-Pitaevskii equation

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Abstract. We derive the asymptotical dynamical law for Ginzburg-Landau vortices in an inhomogeneous background density under the Schrödinger dynamics, when the Ginzburg-Landau parameter goes to zero. New ingredients include lower bounds and approximations across the vortex cores.

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