

A dynamical study of the phase vortex

Luis Fernando Mello¹

April 18, 2007

1. Instituto de Ciências Exatas. Universidade Federal de Itajubá. Av. BPS, 1303, Pinheirinho. CEP 37.500-903, Itajubá, MG (Brazil).

In this talk we discuss the flow lines defined by integral curves of the current field $\text{Im } \psi^* \nabla \psi$ (see [?]) associate to a complex scalar field ψ near a general phase vortex. This study naturally leads to the center-focus problem. Sufficient conditions for spiral behavior of the flow lines near a vortex in terms of the Lyapunov numbers are given.

References

- [1] Berry, M., *Phase vortex spirals*, J. Phys. A: Math. Gen., **38** (2005), L745-L751.