

# Dissipation in Quantum Mean Field

**N. Slama**<sup>1,2</sup>, **P.M. Dinh**<sup>1,2</sup>, **P.G. Reinhard**<sup>3</sup>, **E. Suraud**<sup>1,2</sup>

<sup>1</sup>Université de Toulouse; UPS; Laboratoire de Physique Théorique (IRSAMC); F-31062 Toulouse, France

<sup>2</sup>CNRS; LPT (IRSAMC); F-31062 Toulouse, France

<sup>3</sup>Institut für Theoretische Physik, Universität Erlangen, D-91058 Erlangen, Germany

We discuss an extension of Time Dependent Hartree Fock (TDHF) to include dissipative effects. We propose a simple model to test a stochastic extension of TDHF. Applications to nuclear and molecular problems are outlined. We present in particular a 1D model allowing to test a promising approach to include dissipative features in a quantum mean field. First results are presented in schematic cases.

## References

- [1] P. G. Reinhard, E. Suraud *Introduction to cluster dynamics*, Wiley, Berlin, 2003.
- [2] R.M. Dreizler, E.K.U. Gross, *Density Functional Theory*, Springer, Berlin, 1990.
- [3] Th. Fennel et al., *Rev. Mod. Phys.* **82** (2010) 1793.
- [4] P. G. Reinhard and E. Suraud, *Ann. Phys. (NY)* **216** (1992) 98.