The Wigner Monte Carlo method

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Formalism Equivalence

- Wigner-Weyl transform convert one formalism in another.

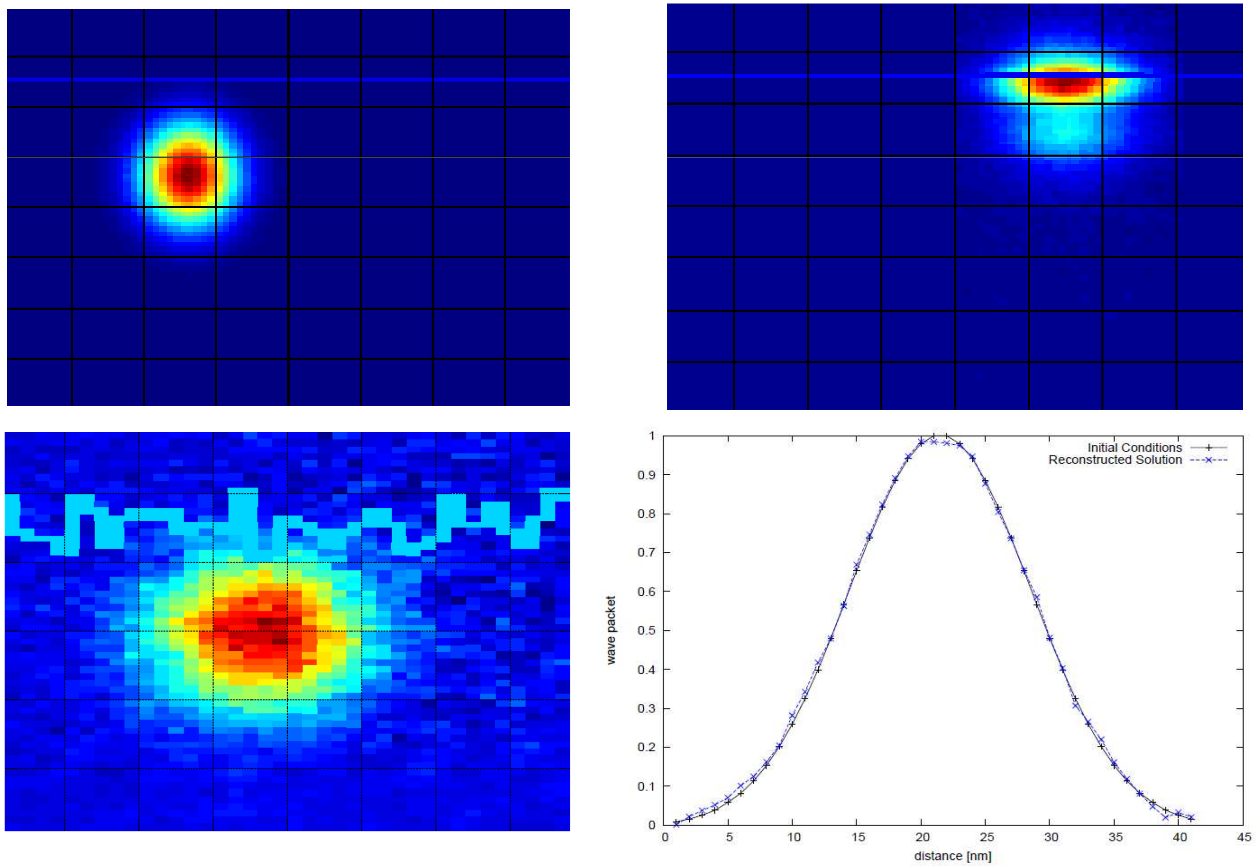
$$i\hbar\frac{\partial \Psi}{\partial t} = \hat{H}\Psi$$

Wigner-Weyl transform

$$\frac{\partial f_W}{\partial t}(\mathbf{x};\mathbf{p}) = -\frac{\mathbf{p}\cdot\nabla_{\mathbf{x}}}{\mathbf{m}} f_W(\mathbf{x};\mathbf{p}) + \int_{-\infty}^{+\infty} d\mathbf{q} f_W(\mathbf{x};\mathbf{p}+\mathbf{q}) V_W(\mathbf{x};\mathbf{p})$$

Emergence of Decoherence

- Time-dependent study in the presence of dispersive processes, inelastic processes, etc.



H_2 molecule