

Generic controllability of the bilinear Schrödinger equation

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We consider a controlled Schrödinger equation of the type

$$id/dt\psi = (-\Delta + V)\psi + uW\psi$$

where u denotes the (scalar) control variable, V and W are, respectively, the uncontrolled and the controlled potential and $\psi \in L^2(\Omega, \mathbf{C})$ is the wave function, defined on some open domain Ω of \mathbf{R}^d , $d \geq 1$. We show that such equation is approximately controllable for a generic choice of Ω , V , and W .