

$$\mathcal{S} = \int d^2r dt \left[ |\partial_t \Psi|^2 - c^2 |\nabla_r \Psi|^2 - V(\Psi) \right]$$

$$V(\Psi) = (\lambda - \lambda_c) |\Psi|^2 + u \left( |\Psi|^2 \right)^2$$