The Keyl-Werner theorem and the spin of a mean-field state

Given a density matrix $\rho$ on $\mathbb{C}^d$, the repeated tensor product $\rho^\otimes n$ acts on $\otimes^n\mathbb{C}^d$, and concentrates on a particular subspace in it. This is a theorem of Keyl and Werner.

I will discuss the theorem, and explain what it tells us about the spin of a ‘mean-field’ state of a bunch of atoms.