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## Condensation in two flavor scalar electrodynamics with non-degenerate quark masses

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We explore two flavor scalar electrodynamics on the lattice, which has a complex phase problem at finite chemical potential. By rewriting the action in terms of dual variables this complex phase problem can be solved exactly. The dual variables are link- and plaquette occupation numbers, subject to local constraints that have to be respected by the Monte Carlo algorithm. For the simulation we use a local update scheme.

Assigning two different fundamental masses to the two flavors of the underlying model we can achieve a mass splitting between the single-flavor quark-antiquark bound states. We then introduce a finite chemical potential and study the particular characteristics of the systems condensation which we expect due to the mass splitting between the bound states.

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