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Beyond mean field calculations by mapping EDF's to an effectiv Hamiltonian

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One powerful technique to go beyond the mean field calculations is the generator coordinate method (GCM). This method incorporate correlations between mean field configurations. However, using an energy density functional (EDF), which is density dependent, for the interaction will make the mixing of states not well defined. Also, the existing methods for the mixing can lead to singularities.

To solve those issues, we present a method to map EDF's to an effective Hamiltonian. This can be used in the GCM in a straightforward way without the risk of running into singularities.

Author: LJUNGBERG, Jimmy

Co-author: CARLSSON, Gillis

Presenter: LJUNGBERG, Jimmy

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