

# Polynomial Similarity Transformation Theory

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I will present a novel theory based on a general polynomial ansatz of non-exponential type that is similar in spirit to single-reference coupled cluster doubles. It describes static and strong correlations quite accurately by incorporating symmetry projected collective states. The model can be viewed as an interpolation between **CCD** and symmetry projected **HF/HFB**. From the **CCD** perspective, the theory incorporates disconnected terms that model the effect of higher cluster operators. But fundamentally, the theory stands on its own as an effective two-body renormalization based on non-unitary similarity transformations. Details about the model and our first results can be found here: <http://arxiv.org/abs/1512.06111>