Models for Strong Correlation

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The last 50 years have witnessed enormous progress in the development of quantum chemistry methods for weakly correlated systems. Both coupled cluster and density functional theories are very successful in accuracy and computational cost. The situation is rather different and much more challenging under strong correlation, where the quest for a computationally affordable and broadly applicable solution remains unabated. In this presentation, I will discuss some recent successes in our research group for strongly correlated systems, and underscore remaining open problems.