Coupled cluster theory with applications to conical intersections and quantum electrodynamics

I will review different aspects of coupled cluster theory with focus on recent developments. In particular, similarity constrained coupled cluster theory\textsuperscript{1} for conical intersections and nonadiabatic dynamics, pump-probe simulations using time-dependent coupled cluster theory\textsuperscript{2} and coupled cluster theory for strong light-matter interactions (Cavity QED chemistry).\textsuperscript{3} These developments are all carried out in the framework of a new electronic structure program eT, based on a highly efficient algorithm for the Cholesky decomposition of two-electron integrals.\textsuperscript{4}

2. A. Balbi, A. Skeidsvoll and H. Koch (to be submitted)