Ab initio many-body calculations of the ^{4}He photo-absorption cross section[1] MICAH SCHUSTER, San Diego State University, SOFIA QUAGLIONI, Lawrence Livermore National Laboratory, CALVIN JOHNSON, San Diego State University, ERIC JURGENSON, Lawrence Livermore National Laboratory, PETR NAVRÁTIL, TRIUMF and Lawrence Livermore National Laboratory — Using the no-core shell model approach with a similarity renormalization group (SRG) evolved two- and three-nucleon (NN+NNN) Hamiltonian, we compute the dipole strength function of ^{4}He, using the Lorentz integral transform (LIT) method to obtain the continuum response. We then compute the total photo-absorption cross section of ^{4}He. We pay particular attention to the convergence of the total strength and of the LIT of the dipole response as we increase the size of the harmonic oscillator basis.

Micah Schuster
San Diego State University

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