Chiral 3N forces and Green's function Monte Carlo calculations of light nuclei[1] JOEL LYNN, Los Alamos Natl Lab — In this talk I will present our recent work on Green's function Monte Carlo (GFMC) calculations of light nuclei using local nucleon-nucleon interactions derived from chiral effective field theory (EFT) up to next-to-next-to-leading order (N2LO). GFMC provides important benchmarking capabilities for other methods which rely on techniques to soften the nuclear interaction and also allows for non-perturbative studies of the convergence of the chiral EFT expansion. I will discuss the natural extension of this work to include the consistent three-nucleon (3N) forces at the same order in the chiral expansion. I will discuss our choice of observables to fit the two low-energy constants which enter in the 3N sector at N2LO, present some results for light nuclei, and give some indications of exciting future work which is now possible.

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Date submitted: 06 Aug 2014   Electronic form version 1.4