Understanding nuclear structure and reactions microscopically, including the continuum
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Discussion Session

Willem H. Dickhoff
Forging the link between nuclear reactions and nuclear structure

- DOM from (elastic scattering) data
- Spectroscopic factors (knock-out vs. transfer)
- Uncertainty in (e,e'p) data due to optical potential
- DOM “standard potentials” local vs. standard optical potentials (CH) for transfer
- Local energy-dependent vs non-local energy-independent optical potentials
- DOM potentials correspond to soft- or hard interactions ?
- What is the message for “conventional” optical potentials (and spectroscopic factors) ?

Carlo Barbieri
Ab initio calculations in the O and Ca regions: reaching open shells and optical potentials

Vittorio Soma
Green's functions in mid-mass nuclei with chiral interactions

- Currently target 0+ states in A, extract A-1, A+1 energies
- particle-number conservation ?
- Open shell – deformation, m-sheme ?
- SRG evolved N3LO NN (500 MeV), N2LO NNN (400 MeV)
- 3N implemented by contraction with correlated one- and two-body density matrices
- Too large gap between major shells
- Overbinding for larger nuclei, radii too small

Discussion Session

Sonia Bacca
Towards ab initio calculations of electromagnetic reactions in medium mass nuclei

- nuclear interaction and currents (MEC, Siegert theorem)
- Inversion of LIT L(sigma,Gamma)
- Ca: GDR shifted to higher energy – related to radii ?
- Electric dipole polarizability – correlation with charge radius/neutron skin

Jimmy Rotureau
Ab initio description of light nuclei in the Berggren basis

George Papadimitriou
Many body methods for the description of bound and unbound nuclear states

- GSM (resonances + discretized continuum on deformed contour)
- NCGSM (Vlowk), s- and p-shells from HF (including complex poles), for l>1 HO orbits
- Diagonalization with DMRG - truncation in continuum shells, other methods possible ?
- Complex scaling vs GSM, advantages/disadvantages ?
- Back rotation (Fourier/Tikhonov)
- How to calculate observables (cross sections, transition strengths, …)
- GSM with realistic effective interactions from NCSM with core/IM-SRG/CC