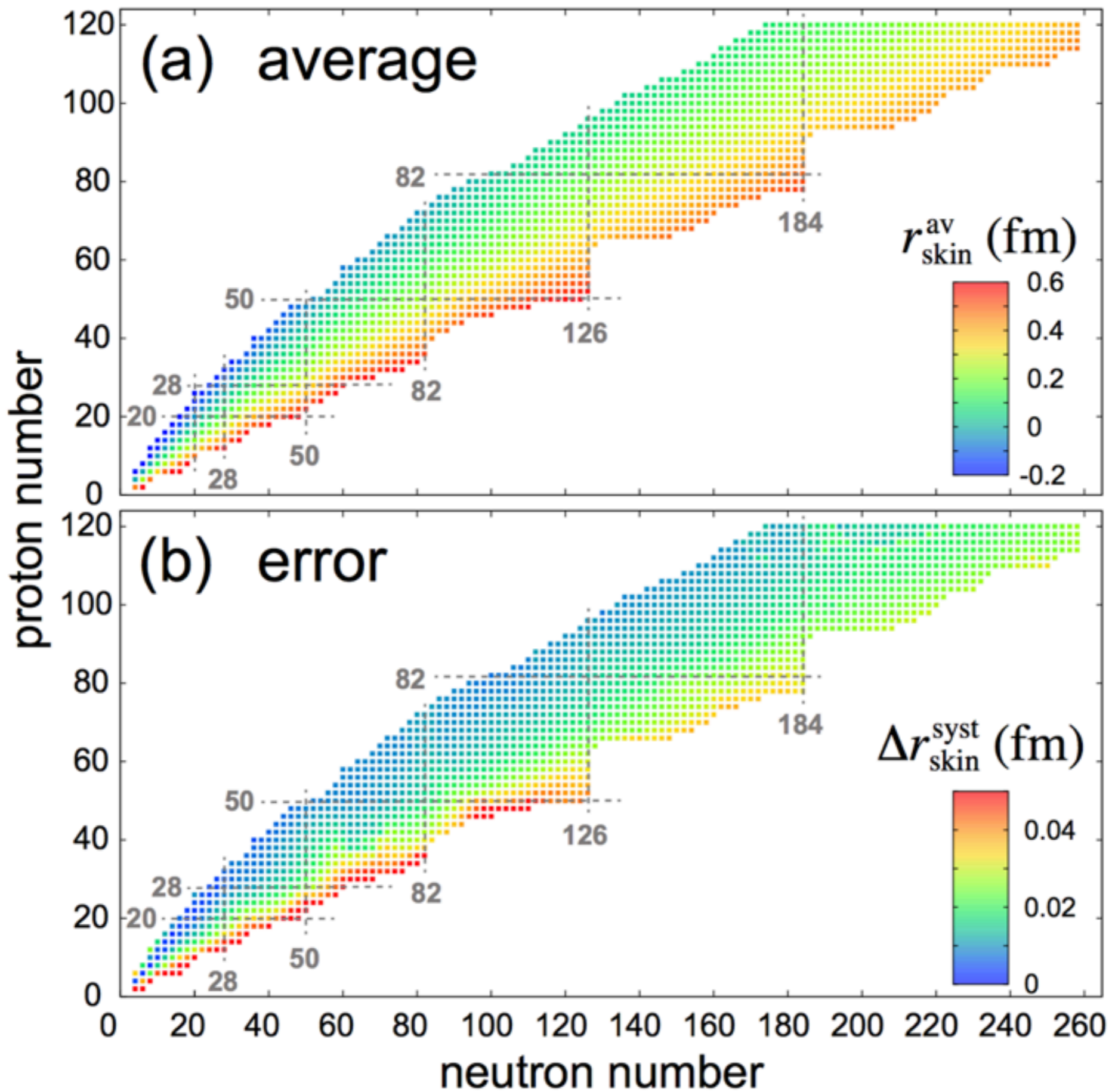


Wednesday discussion

- Calculating warm nonuniform low density matter. How to include mass 4 nuclei in transport models?
- Correlations of various observables with L and X. Roca-Maza
- Charge exchange rxn to IAS

ArXiv:
1307.4223



Neutron skin uncertainties of Skyrme energy density functionals

M. Kortelainen,^{1,2} J. Erler,³ W. Nazarewicz,^{2,4,5} N. Birge,² Y. Gao,¹ and E. Olsen²

ArXiv:1307.4223

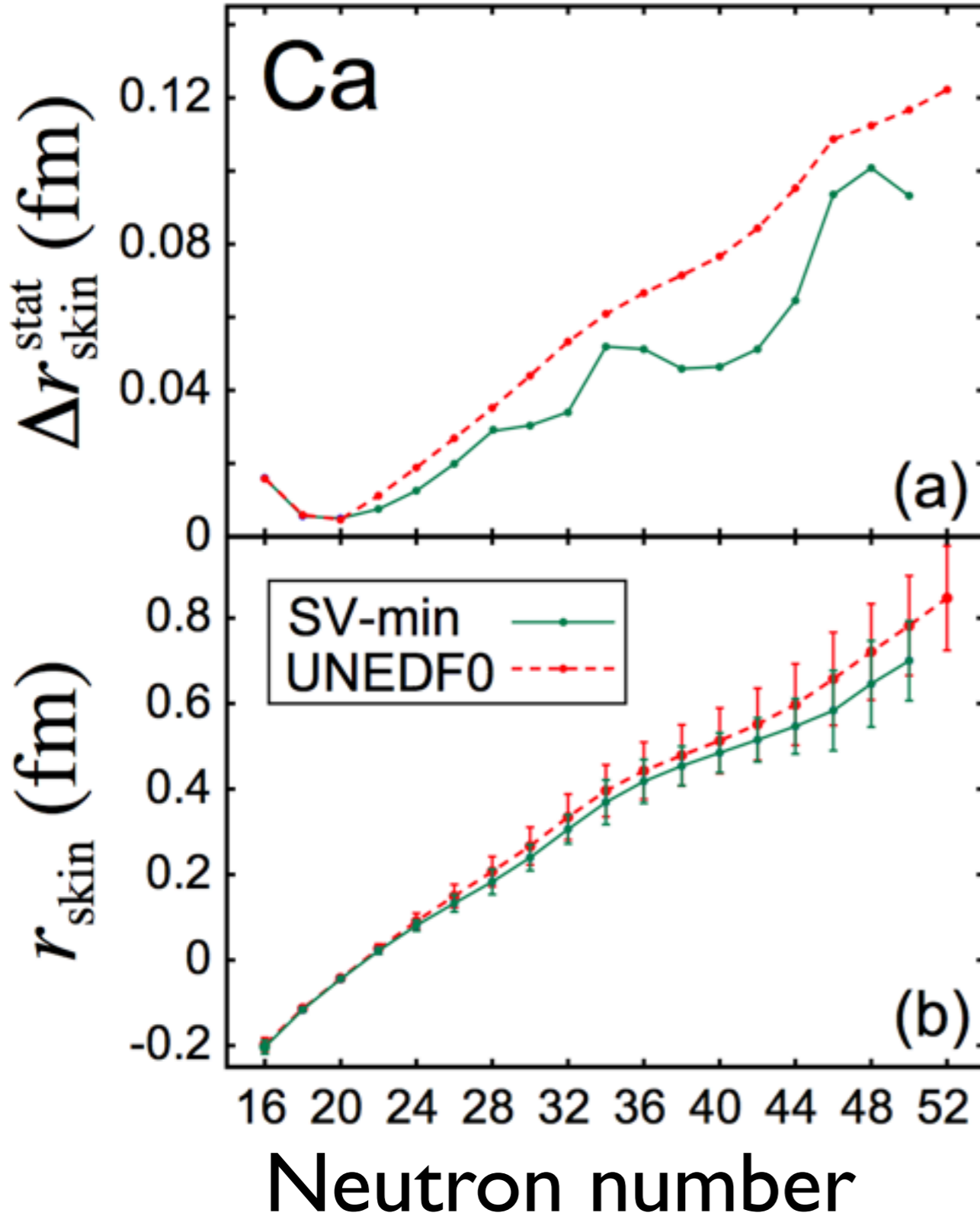
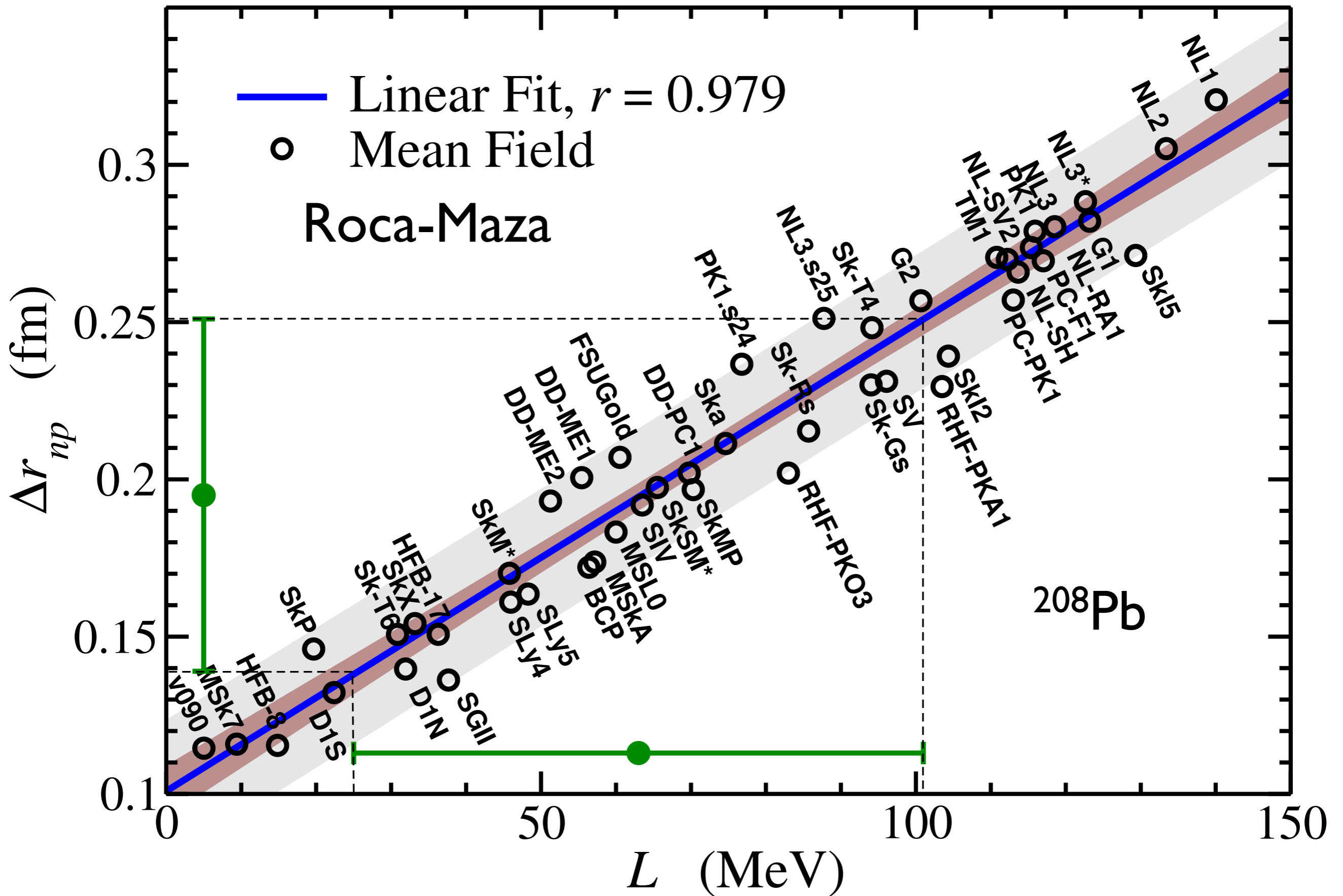


TABLE I. Theoretical uncertainties on r_{skin} in ^{208}Pb and ^{48}Ca (in fm). Shown are statistical errors of UNEDF0 and SV-min, systematic error $\Delta r_{\text{skin}}^{\text{syst}}$, the model-averaged deviation of Ref. [9], and errors of PREX [25] and planned PREX-II [29] and CREX [30] experiments.

nucleus	$\Delta r_{\text{skin}}^{\text{stat}}$		$\Delta r_{\text{skin}}^{\text{syst}}$	Ref. [9]	Experiment
	UNEDF0	SV-min			
^{208}Pb	0.058	0.037	0.013	0.022	0.18 [25], 0.06 [29]
^{48}Ca	0.035	0.026	0.019	0.018	0.02 [30]



“FRIB experiments” with radioactive beams

- Total rxn cross section
- Charge radius via electron scattering, via isotope shift and laser spectroscopy. [Need theory what do we learn from charge radii]
- Matter / neutron radii from proton elastic scattering, form alpha elastic scattering
- (p,n) to IAS, (he3, t) to IAS also spin dipole state, difference in energy between GT and IAS. (p,n) is feasible down to $\sim 10^4$ particles per second beams.
- Electron scattering for dipole polarizability, small angle proton scattering for polarizability
- Which are feasible? Which are useful? Are they feasible for nuclei that are “extreme enough” to be useful? Think about ^{54}Ca as a reasonable case.

Lots of Sn data

- Can one calibrate Sn system with a PV measurement of neutron skin? ^{120}Sn or ^{124}Sn