

# Nuclear forces: the next five years in five minutes and two slides

DANIEL PHILLIPS

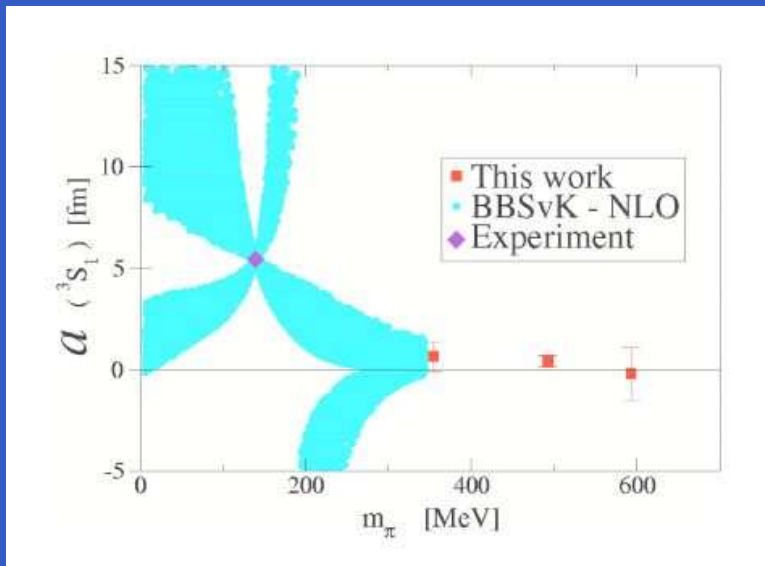
Department of Physics and Astronomy  
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# Nuclear forces from QCD

$\chi$ ET  $\rightarrow m_\pi$  dependence of nuclear force  $\Leftrightarrow m_q$  dependence

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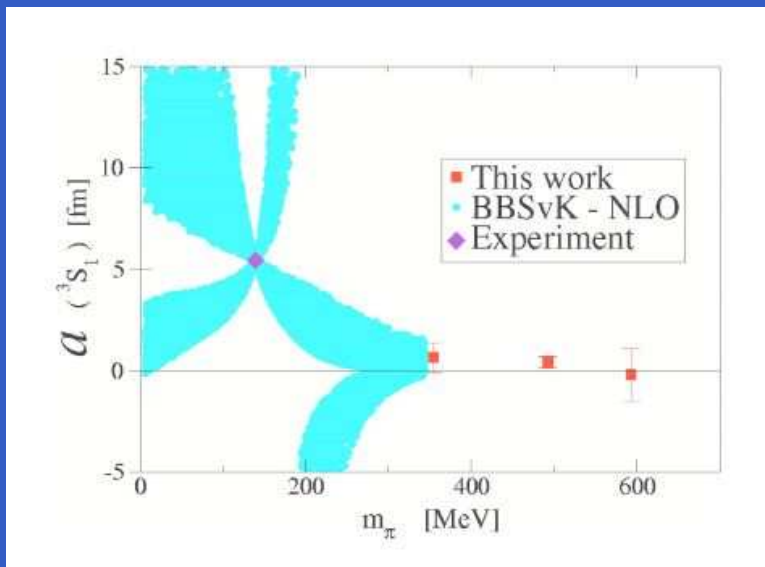
Lüscher: finite volume a feature, not a bug

$$m_n - m_p = 2.26 \pm 0.57 \pm 0.42 \pm 0.10 \text{ MeV}$$

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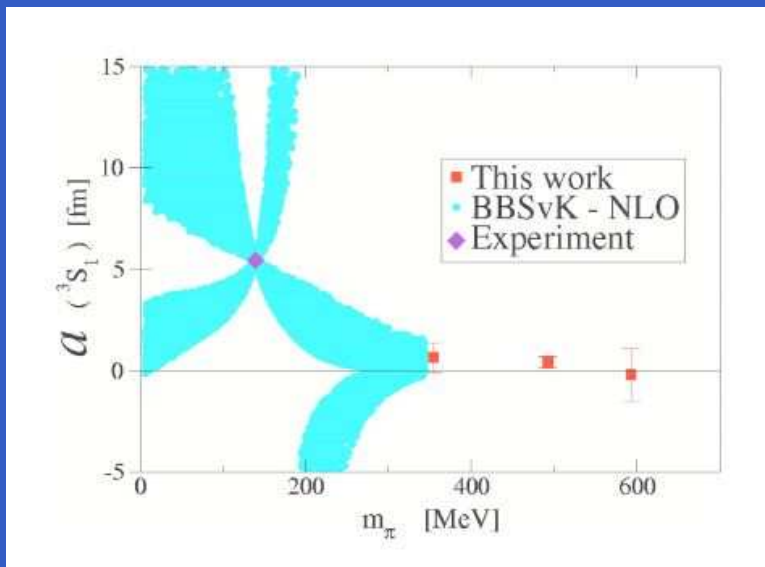
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3NFs on lattice  $\rightarrow T = \frac{3}{2}$ . Extension of Lüscher to  $A = 3$ .

# Universality in light nuclei

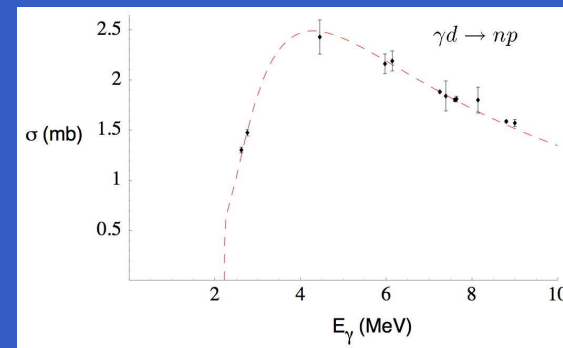
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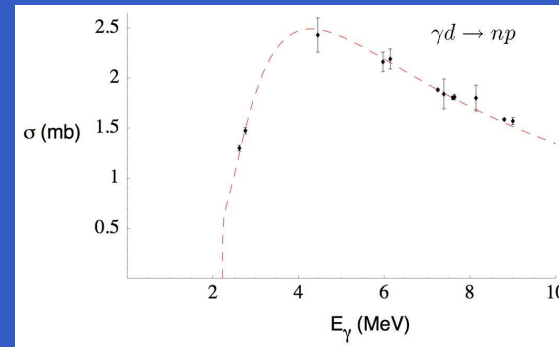


Rupak, 1999

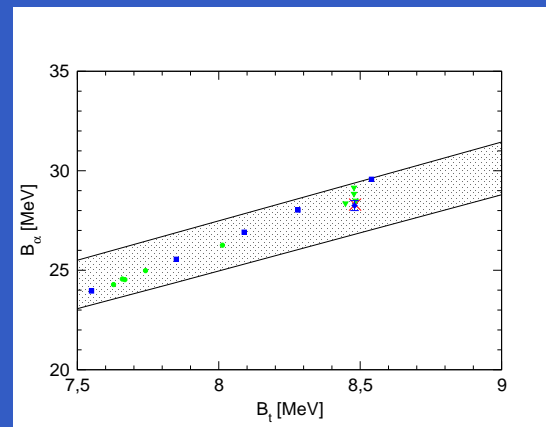
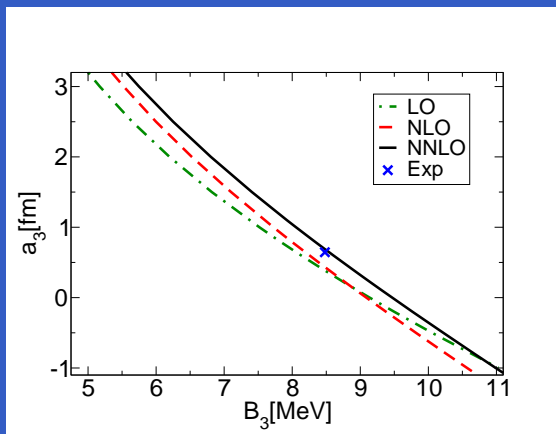
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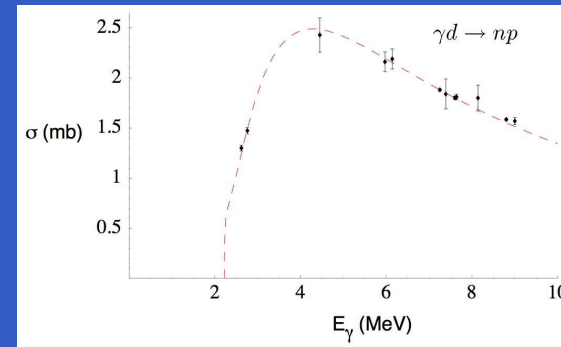
Platter *et al.*, 2005-6

EW probes ongoing

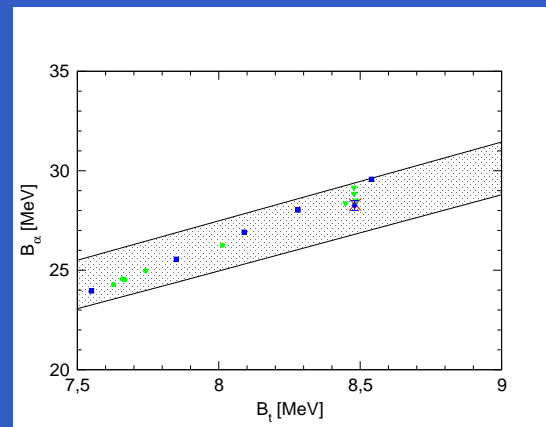
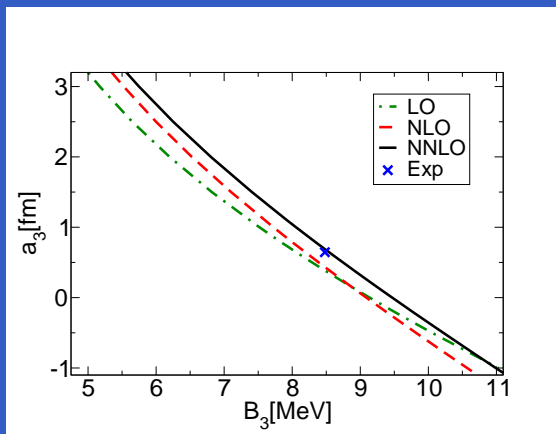
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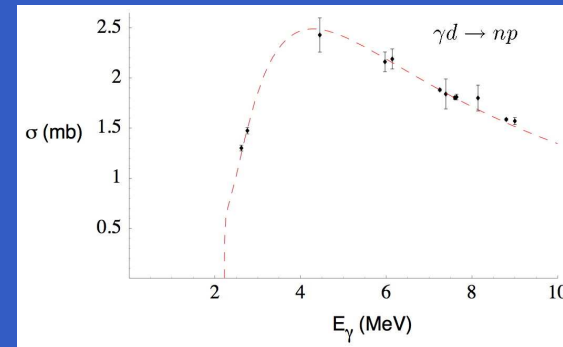
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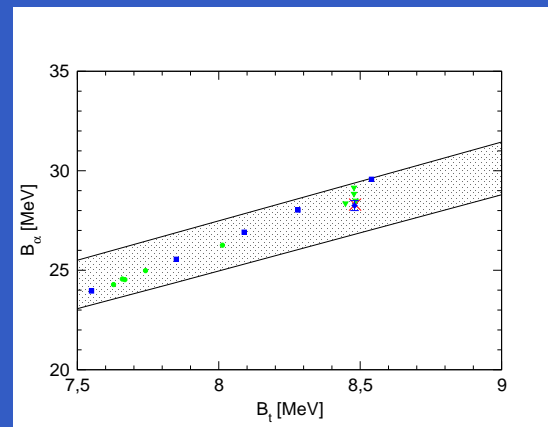
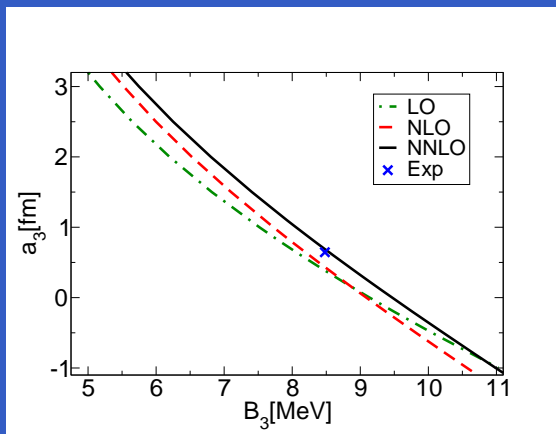
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Correlations between observables in halo nuclei