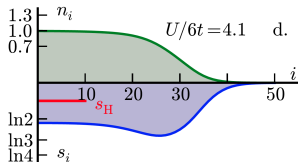
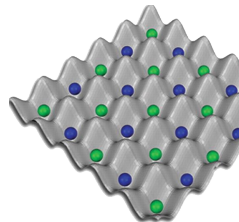


Universal probes for antiferromagnetic correlations and entropy in cold fermions on optical lattices: Motivation

E. V. Gorelik, D. Rost, T. Paiva, R. Scalettar, A. Klümper, N. Blümer

Prospect of cold atoms: quantum simulators of solids

Missing link: antiferromagnetism (staggered order)



[Jördens et al., PRL **104**, 180401 (2010)]

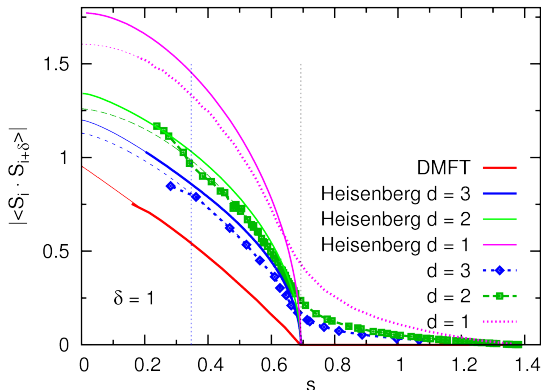
- How to detect AF order/correlations?
- Which entropy range is needed/interesting?
- General impact of dimensionality?

Universal probes for antiferromagnetic correlations and entropy in cold fermions on optical lattices: Results

Half-filled Hubbard model ($U/t = 15$ for cubic lattice)

Methods: determinantal QMC vs. DMFT and BA

NN spin correlations unspecific



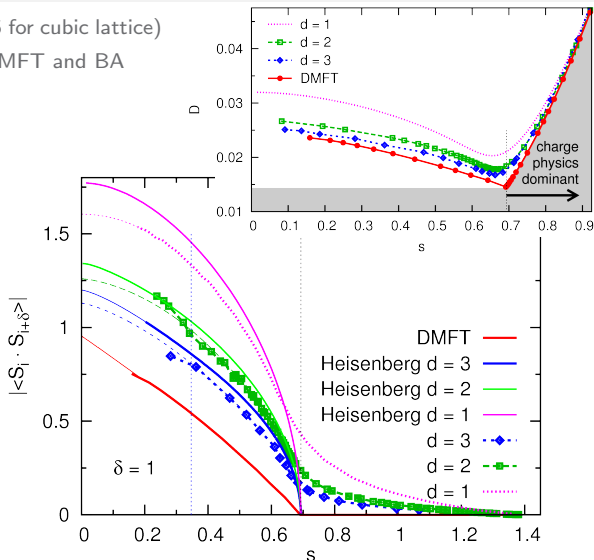
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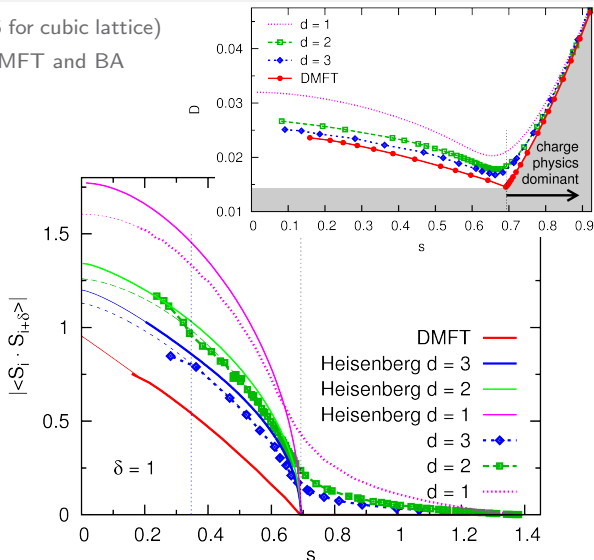
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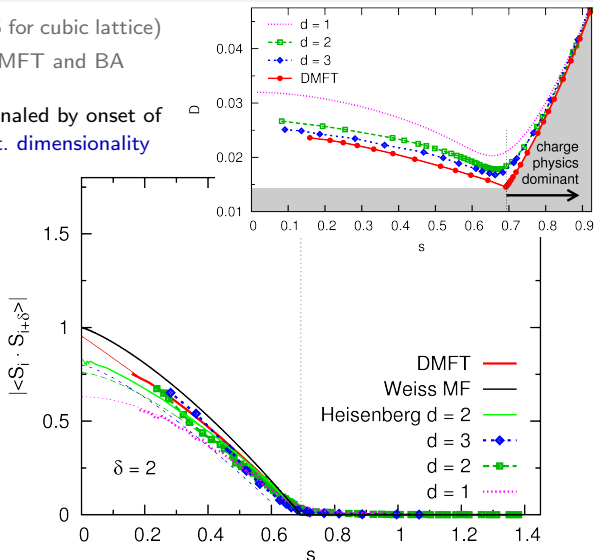
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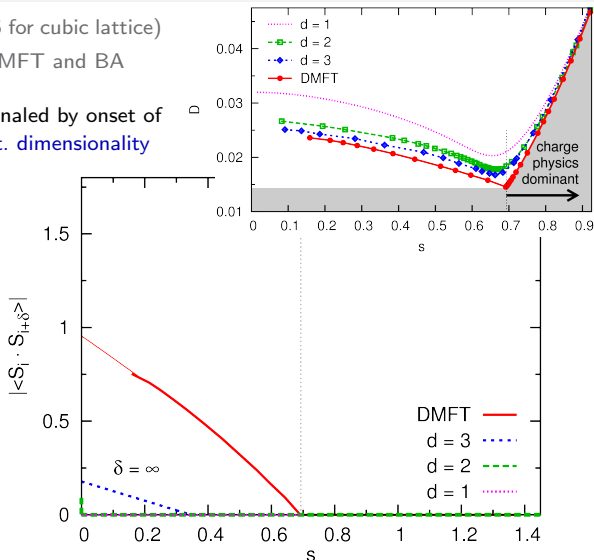
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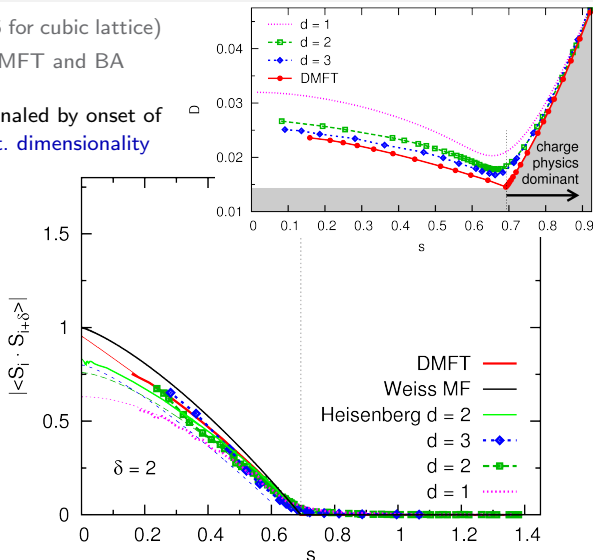
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Expt: \circ measure $D(s)$ (+ NNN?)

\circ tune dimensionality

\circ AF physics accessible for
 $\log(2)/2 \lesssim s \lesssim \log(2)$



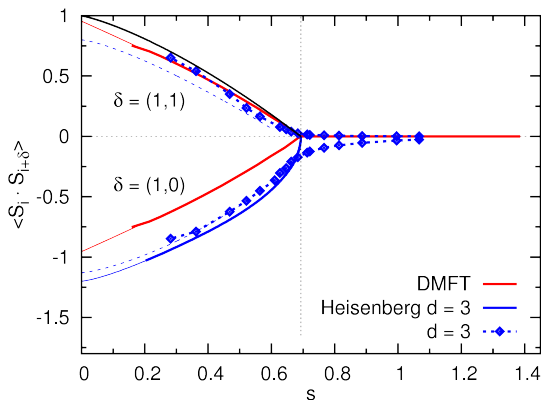
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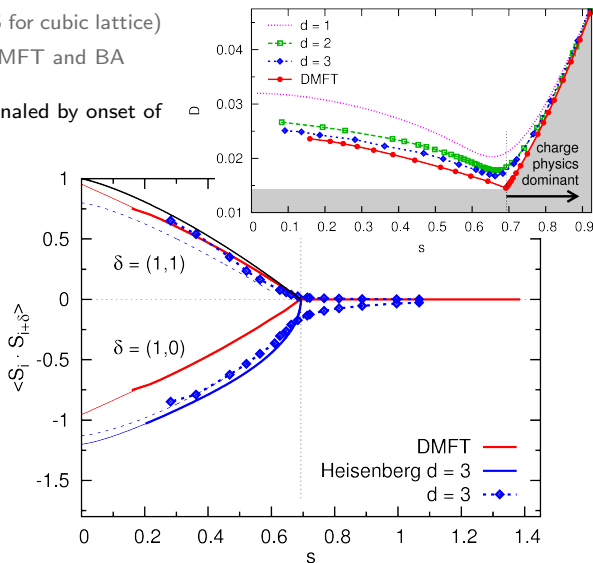
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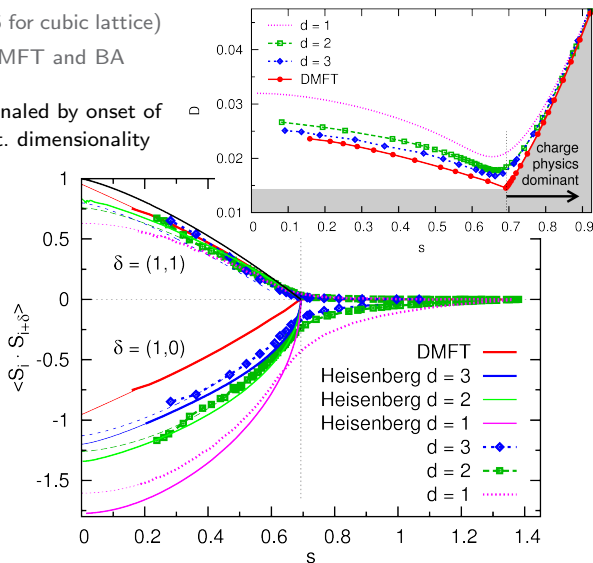
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