

# Accessing localization properties of many-body systems with quantum Monte Carlo

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We present results on the localization properties of ground-states of quantum many-body models in a given configuration basis. I will first introduce measures of this localization by defining the corresponding Shannon and Renyi entropies. I will review recent exact results obtained in the literature for spin chains, where sub-leading terms in the scaling of these entropies are found to take an intriguing universal behaviour. I will then present schemes to measure these localization entropies with Quantum Monte Carlo simulations, and finally show results for  $1d$  and  $2d$  quantum spin systems.

Work done in collaboration with Nicolas Laflorencie and David Luitz.