Fast Entanglement Generation and Quantum Information Transfer in Quantum Systems with Long-Range Interactions

- short-range vs long-range

Defects in solids  |  Rydberg atoms  |  Polar molecules
[Lukin et al]  |  [Browaeys et al]  |  [Ye et al]

- fast preparation of entangled states for time-keeping and sensing (electrometry, magnetometry, thermometry, gravimetry)
- medium for fast quantum state transfer: speed up many quantum computing algorithms and outpace decoherence