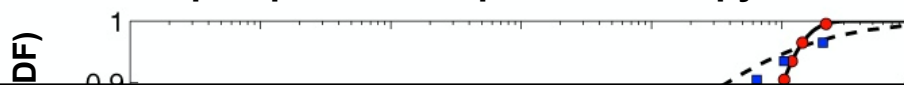


Q5: Are we confident that quantum spin microscopy will work?

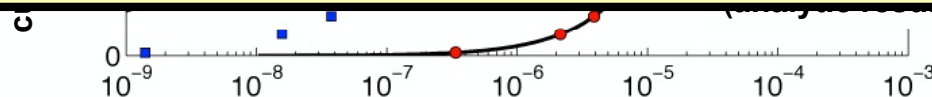
A5: QMOR generalizes to higher-dimensional spin systems

Numerical simulations of high-temperature spin dust – a deliberately tough challenge –

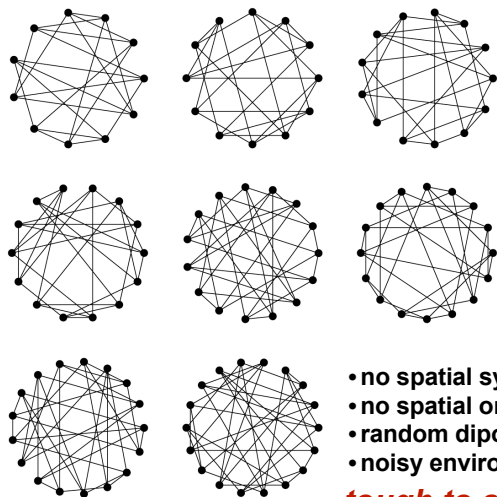
18-spin quantum dispersion entropy values



**Quantum MOR is feasible:
replacing quantum noise
with covert measurement
yields compressed trajectories**



quantum dispersion entropy (QDE)



- no spatial symmetry
- no spatial ordering
- random dipole coupling
- noisy environment

tough to simulate

- Exact 18-spin quantum trajectories yield QDE CDFs that are restricted to an exponentially small fraction of Hilbert space
- *This is good news, because such low entropy values assure us that a compression algorithm must exist (but do not provide an explicit example)*
- Now we are motivated to search for an explicit algorithm that consumes only P-space and P-time resources (see next five slides)