

MEASURING THE QUADRATURE COHERENCE SCALE ON BOREALIS

Aaron GOLDBERG

National Research Council of Canada

aaron.goldberg@alum.utoronto.ca

Just because you have the ideal way of quantifying a state's quantumness doesn't mean you can measure it. The quadrature coherence scale was invented to quantify how much macroscopic coherence a state possesses, but it was unknown how to measure it until a recent proposal demonstrated a potential measurement requiring two copies of the state in question, linear optics, and photon-number-resolving detectors. This talk incorporates components already being developed toward fault-tolerant quantum computation and so we were able to demonstrate such a measurement on Xanadu's Borealis machine, available via the cloud. We comment on the exciting interplay between theoretical and experimental developments in this rapidly growing field.