Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **3348** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) Stellar representation of extremal Wigner-negative spin states

Wednesday 8 June 2022 16:00 (15 minutes)

The Majorana stellar representation is used to characterize maximally Wigner-negative spin states with respect to the SU(2)-covariant Wigner function. Comparisons are made to alternative definitions of nonclassicality, including anticoherence, the geometric measure of entanglement, and P-representability. Despite varying low-dimensional agreement between these definitions, the maximally Wigner-negative states are generally found to disagree with the others, with their higher order constellations not corresponding to a Platonic solid when available, or any other similar geometric embedding. We further find for spin systems with $j \leq \frac{7}{2}$ that random constellations/states are not particularly Wigner-negative relative to the maximum. we will also review our proof that all spin coherent states of arbitrary dimension are not positive-definite.

Author: DAVIS, Jack

Co-authors: GHOSE, Shohini (Wilfrid Laurier University); HENNIGAR, Robie (Institute for Cosmos Sciences, University of Barcelona); MANN, Robert

Presenter: DAVIS, Jack

Session Classification: W3-9 Laser Development (DAMOPC) | Progrès dans les lasers (DPAMPC)

Track Classification: Technical Sessions / Sessions techniques: Atomic, Molecular and Optical Physics, Canada / Physique atomique, moléculaire et photonique, Canada (DAMOPC-DPAMPC)