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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.

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