

Abstract Submitted  
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**Quantum Correlations in Large-Dimensional States of High Symmetry** ERIC CHITAMBAR, University of Toronto — Multi-party quantum systems can possess non-classical correlations more general than those characterized by entanglement. In this talk, I will discuss various proposed measures of quantum correlations and investigate how these measures behave for the so-called Werner and isotropic families of states. In particular, I will provide closed expressions for the quantum discord (QD) and the relative entropy of quantumness (REQ) in these states for arbitrary dimensions. The QD and REQ will be shown to equal one another, as well as other well-known measures of quantum correlations. For all Werner states, the classical correlations are seen to vanish in high dimensions while the amount of quantum correlations becomes independent of whether or not the state is entangled. For isotropic states, nearly the opposite effect is observed with both the quantum and classical correlations growing without bound as the dimension increases and only as the system becomes more entangled.

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