

Abstract Submitted
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Bell inequalities for general quantum observables¹ KARL-PETER MARZLIN, St. Francis Xavier University, THOMAS OSBORN, University of Manitoba — Bell inequalities provide an upper bound for the mean value of observables. They are fulfilled classical Hidden-Variable (HV) theories but are violated in quantum mechanics. Most Bell inequalities have been derived for observables with dichotomic spectra. We prove for general observables that the upper bound in HV theories can be expressed through a quantum mechanical expectation value. We present local and non-local examples of Bell inequality violation in quantum phase space.

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