

Abstract Submitted
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A condition for macroscopic realism beyond the Leggett-Garg inequalities JOHANNES KOFLER, Max Planck Institute of Quantum Optics — In 1985, Leggett and Garg have put forward the concept of macroscopic realism (macrorealism), stating that the properties of macroscopic objects exist independent of and are not influenced by measurement. In analogy to Bell's theorem, they derived a necessary condition in terms of inequalities, which are now known as the Leggett-Garg inequalities. In this talk, a mathematical condition is introduced which is not only necessary but also sufficient for macrorealism. More importantly, the structure of this condition intuitively encompasses the physical meaning of macrorealism and allows for its experimental test in situations where the paradigm of Leggett-Garg inequalities might not be applicable.

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