

Local Realism vs Quantum Mechanics with Entangled Neutral Kaons

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We review recent proposals of Bell's inequality tests with entangled pairs of neutral kaons from ϕ resonance decays. The suggested experiments are discussed in the light of the essential requirements for a genuine discrimination between Local Hidden-Variable Theories (i.e., Local Realism) and Quantum Mechanics. After showing that the tests proposed up to now can hardly (or cannot) be performed under conditions which are strictly free from the locality and the detection loopholes, we concentrate on those proposals which appear to be more feasible, clarifying their logical limitations in refuting the whole class of Local Realistic models.

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