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A non-Markovian optical signature for detecting entanglement in coupled excitonic qubits[1] FERNEY RODRIGUEZ, LUIS QUIROGA, Universidad de los Andes, NEIL JOHNSON, University of Oxford, UNIVERSIDAD DE LOS ANDES COLLABORATION, UNIVERSITY OF OXFORD COLLABORATION — We identify an optical signature for detecting entanglement in experimental nanostructure systems comprising coupled excitonic qubits. This signature owes its strength to *non-Markovian* dynamical effects in the second-order temporal coherence function of the emitted radiation. We calculate autocorrelation and cross-correlation functions for both selective and collective light excitation, and prove that the coherence properties of the emitted light do indeed carry information about the entanglement of the initial multi-qubit state.We also show that this signature can survive in the presence of a noisy environment.

[1]Facultad de Ciencias-Uniandes (2006)

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