

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Nature of Light-Harvesting-System Excited States Prepared by Thermal Light** JUAN DAVID BOTERO, Univ de Antioquia, PAUL BRUMER, University of Toronto, LEONARDO PACHON, Univ de Antioquia, GRUPO DE FISICA ATOMICA Y MOLECULAR TEAM, CHEMICAL PHYSICS THEORY GROUP TEAM — The nature of excited states produced by incoherent natural thermal light is analyzed in the context of light-harvesting system. In the absence of proteomic environments or solvents, it is shown that natural thermal light generates extremely long-lasting coherent dynamics in photosynthetic light-harvesting systems provided by the super-Ohmic character of the radiation, the lack of pure dephasing dynamics and the small energy gap between donors and acceptors. Although this unexpected result has the potential of changing the entire direction of the discussion on the nature of excitonic states prepared by sunlight, when the environment is considered, the extremely long-lasting coherences induced by incoherent light are removed and stationary coherences are established in the photosynthetic light-harvesting system.

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Date submitted: 14 Nov 2014

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