

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**Quantum Fisher Information as a function response to a weak external perturbation**<sup>1</sup> FERNANDO ROJAS, JESUS A. MAYTORENA, Center of Nanoscience and Nanotechnology-UNAM, Ensenada Baja California 22800 Mexico — The quantum fisher information (QFI) is known as a good indicator of entanglement in a multipartite systems. In this work we show that it can be treated as an induced response to an external field, in the same spirit of the usual linear response theory, with respect to a linear combination of observables of each subsystem. We derive an expression for a corresponding linear dynamical susceptibility which contains relevant information about entanglement properties of a multipartite system. This approach is applied to investigate the hybrid entanglement in the driven Jaynes-Cummings model. The Fisher susceptibility response function is obtained and allows us to characterize the changes on quantum correlations between the qubit and photon states, in terms of the driving frequency, atom-field coupling, and temperature.

<sup>1</sup>We acknowledge financial support from DGAPA PAPPIT IN105717

Fernando Rojas  
Univ Nacl Autonoma de Mexico

Date submitted: 09 Nov 2016

Electronic form version 1.4