

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Loop vs ladder delay scanning protocols in multidimensional spectroscopy with entangled light KONSTANTIN DORFMAN, SHAUL MUKAMEL, University of California, Irvine — Multidimensional optical signals are commonly recorded by varying the delays between time ordered pulses. These control the evolution of the density matrix and are described by ladder diagrams. We propose a new non time ordered protocol based on monitoring the wavefunction and described by loop diagrams. The time variables in this protocol allow to observe different resonances and reveals information about intraband dephasing missed by the standard technique. Coupling to entangled light described naturally by the protocol scrambles the time variables and provides high selectivity and background free measurement of the various resonances. Entangled light can resolve various states even when strong background due to fast dephasing suppresses the resonant features if probed by classical light.

Konstantin Dorfman
University of California, Irvine

Date submitted: 13 Nov 2013

Electronic form version 1.4