



NECEM SEMINAR: “Linear and non-linear spectroscopy using quantum photons: Make Light Quantum Again!”

Prof. Eric R. Bittner, University of Houston

14:00pm-15:00pm, Wednesday 13th March 2019

Newcastle University, Bedson Building, Lecture Theatre 1.75

Refreshments available after the seminar

Abstract

“Linear and non-linear spectroscopy using quantum photons: Make Light Quantum Again!”

Recent advances in both theory and experimental technique have advanced the notion that there might be something to be gained by probing material systems with quantum photons, as opposed to more conventional laser sources. First, I shall discuss a couple of recent experiments that demonstrate that one can in fact extract ultrafast (fs) time-scale dynamics using CW sources and our theoretical methods for computing such responses. I shall propose that exciton/exciton correlations lead to the production of entangled photons. By measuring the entanglement entropy, one has a direct measure of both the magnitude and time-scale of such correlations.

Biography



Prof. Eric R. Bittner

[University of Chicago](#) Ph.D 1994

[University of Texas at Austin](#)

Postdoctoral Fellow, 1994-1996

[Stanford University](#)

Postdoctoral Fellow 1996-1997

[University of Houston](#)

Asst. Prof. 1997-2003

Asso. Prof. 2003-2008

Professor 2008-

Accolades

2018 Leverhulme Visiting Professorship, Durham Univ.



Engineering and Physical Sciences
Research Council

**UK Research
and Innovation**

2016 Fellow of the Royal Society of Chemistry

2016 Fellow of American Physical Society

2012 Fulbright Canada Fellow

[2009 John and Rebecca Moores Professorship](#)

[2008 UH Research Excellence Award](#)

[2007-2008 Guggenheim Fellow](#)

2003 Int. J. Quantum Chemistry Young Investigator Award 1999 NSF CAREER Award

1995-1997 NSF Postdoctoral Fellow

Location

Newcastle University, Bedson Building, Lecture Theatre 1.75

See attached map: <https://www.ncl.ac.uk/media/wwwnclacuk/whoweare/files/campus-map.PDF>