



Solid State Institute  
המכון למחצב מוצק

TECHNION  
Israel Institute  
of Technology



הטכניון  
מכון טכנולוגי  
לישראל

**SPECIAL SEMINAR**

**סמינר מיוחד**

## **Efficient benchmarking of photonic cluster state sources**

*Mr. Thomas Nutz*

*Imperial College  
London*

### Abstract

Certain single-photon sources are capable of emitting strings of entangled photons. In particular, photonic cluster state sources could enable measurement-based quantum computing and are therefore under intense investigation. While experiments are progressing, the issue of benchmarking comes to the fore.

The challenge is to quantify the useful long-range entanglement of a large photonic state using only the few-photon correlation measurements that are feasible given limited emission/detection efficiencies. We present a lower bound on localizable entanglement that requires only simple three-qubit correlation measurements. This method therefore enables direct demonstration of computationally powerful multi-photon entanglement with currently available experimental capabilities.

**ההרצאה תתקיים ביום חמישי, ה-19.1.2017 בשעה 12:30  
בבניין פיסיקה, לווינר, חדר סמינרים (412)**

**The lecture will take place on Thursday, 19.1.2017 at 12:30  
at the Physics Building, Lewiner Seminar Room (412)**

**Host: Assistant Professor Netanel Lindner**