

MajuLab Seminar



Thursday, November 18, 2021

4:30 PM Singapore time / 09:30 AM French time

Online via Zoom, registration is required. Please register at:

<https://nus-sg.zoom.us/meeting/register/tZYodeyqrT8tE9JdoIGWTCpEPiEJRKqmR5bl>

Alexia Auffèves

Institut Néel, CNRS, Grenoble, France



Alexia Auffèves is a CNRS senior scientist at Institut Néel, Grenoble, France. She did her PhD in the group of S. Haroche, where she fabricated Schrödinger cat states of light. She was hired at CNRS in 2005 to realize quantum optics experiments with semiconducting quantum dots. She then took a theoretical turn. She is expert in quantum thermodynamics, quantum information and quantum foundations, and works closely with experimentalists and theorists worldwide. She heads the Grenoble ecosystem for quantum science and technology since 2017.

A short story of quantum and information thermodynamics

This seminar is a fast journey through the build-up of key thermodynamical concepts, i.e. work, heat and irreversibility -- and how they relate to information. Born at the time of industrial revolution to optimize the exploitation of thermal resources, these concepts have been adapted to small systems where thermal fluctuations are predominant. Extending the framework to quantum fluctuations is a great challenge of quantum thermodynamics, that opens exciting research lines e.g. measurement fueled engines or thermodynamics of driven-dissipative systems. On a more applied side, it provides the tools to optimize the energetic consumption of future quantum computers.

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