

## **Raman spectroscopy capabilities for characterization of semiconductors nanostructures**

*Friday, 17 November 2023 10:00 (30 minutes)*

Raman spectroscopy is a fast, sensitive, and non-destructive technique for characterization of structure, phonon spectrum and even some electronic properties of semiconductors and isolators. In exploring semiconductor nanostructures and heterostructures, this technique benefits from possibility to tune the excitation wavelength to selectively excite parts of the material with different composition, size or other factors of heterogeneity. The full compatibility with optical and near-field microscopy allows sub- $\mu\text{m}$  spatial resolution to be achieved for mapping of elemental composition, strain, and temperature, including in situ and operando applications. An extension to the nm-resolution has already been implemented by combining Raman spectroscopy with scanning probe microscopy techniques. This talk gives briefly the basics of the Raman spectroscopy methods and exemplify its capabilities and limitations in application to characterization of different kinds of semiconductor nanostructures.

### **Topics**

Session A. Physics of condensed matter and spectroscopy

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