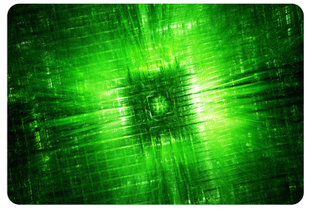
cryoRaman

supreme features

attocube
WITTENSTEIN Group

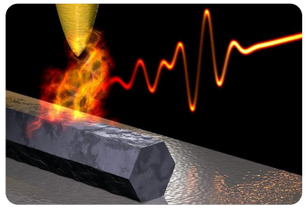
- highest spatial resolution: <400nm
- highest spectral resolution: 0.8 rel. 1/cm
- sharpest depth resolution: <2µm
- lowest cut-off: 10 rel. 1/cm
- lowest z-vibrations: 1nm pp
- most accurate power control: 0.1 mW
- quickest data acquisition: <1ms/spectrum
- lowest temperature: <1.8K – 300K
- broadest selection of magnets: up to 12T & vector fields

Fields of Applications



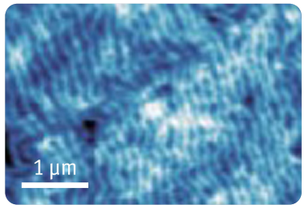
Optics & Spectroscopy

quantum optics



Materials Science

investigation of material properties



Surface Science

analysis of thin films & surfaces

White Paper

Proof-of-principle measurements with the cryoRaman microscope

SCAN ME

attocube systems AG Eglfinger Weg 2 | 85540 Haar
Germany | info@attocube.com | www.attocube.com

attocube
WITTENSTEIN Group

new benchmark for Raman microscopy

cryoRaman

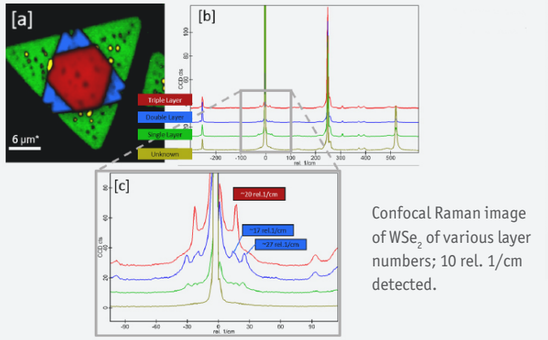
cryogenic Raman microscope

CRYOGENIC INSTRUMENTS
cool tools for cold science

Selected Measurements

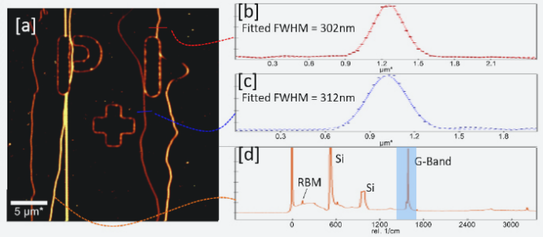
performed with the cryoRaman microscope

High-resolution Raman imaging on WSe_2



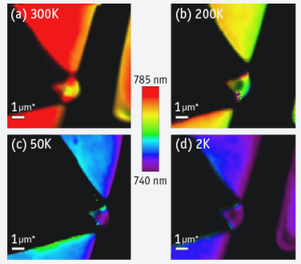
Confocal Raman image of WSe_2 of various layer numbers; 10 rel. 1/cm detected.

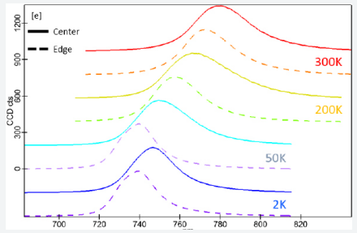
Spatial Resolution



Confocal Raman scan of single-wall CNTs on Si at T=2K. Spatial resolution <400nm.

Temperature-dependent PL on WSe_2

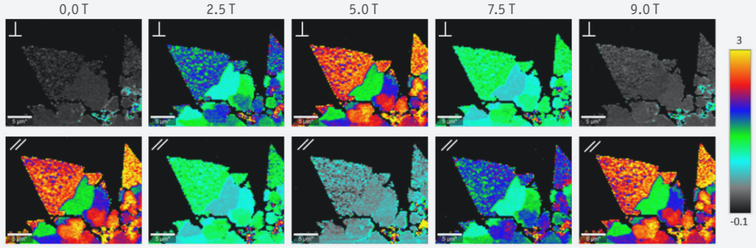




Shift of the position of PL peak of monolayer WSe_2 with increasing temperature and the accompanying broadening of the PL peak.

Magnetic field- and polarization-dependent Raman imaging on MoS_2

Intensity ratio of Raman signals A_1' and E' in MoS_2 at 2K. The change in suppression of A1´ from perpendicular to parallel polarization configuration as the magnetic field is increased from 0 to 5T, and back again from 5T to 9T.

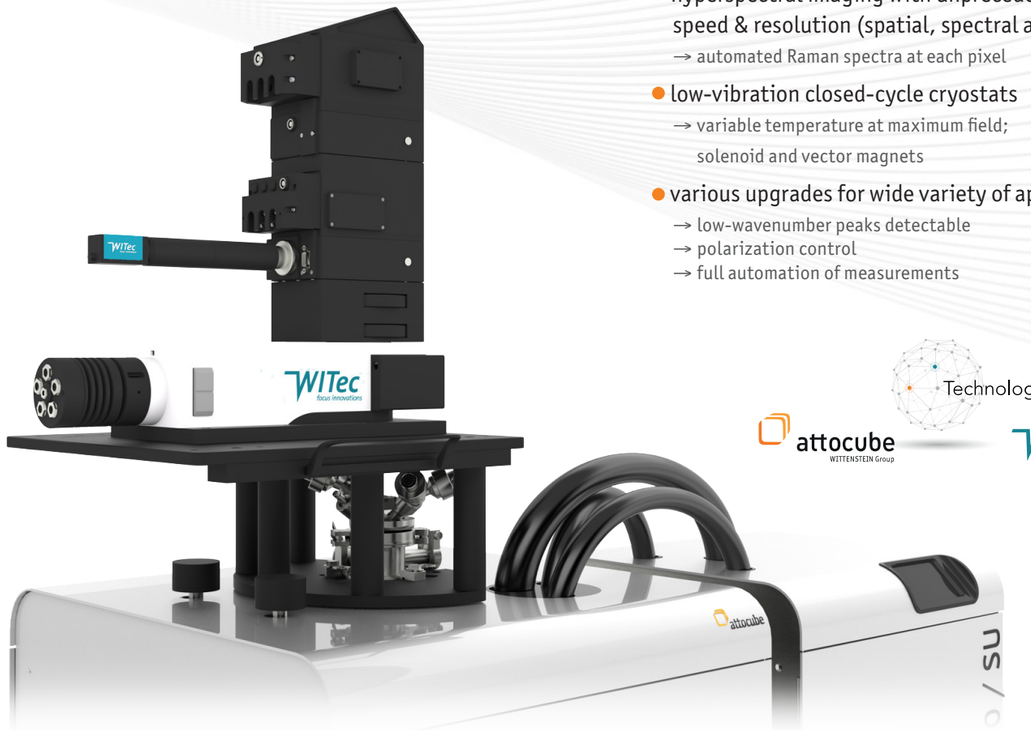


Confocal Raman Microscope

for cryogenic temperatures & high magnetic fields

Jointly developed by attocube and WITec, cryoRaman blends attocube's cutting-edge cryostat and nanopositioning technology with the vaunted sensitivity and modularity of WITec's Raman imaging.

For the first time, Raman microscopy at cryogenic temperatures and in high magnetic fields is easily accessible and offers a unique user-friendly experience..



- hyperspectral imaging with unprecedented speed & resolution (spatial, spectral and depth)
  → automated Raman spectra at each pixel
- low-vibration closed-cycle cryostats
  → variable temperature at maximum field; solenoid and vector magnets
- various upgrades for wide variety of applications
  → low-wavenumber peaks detectable
  → polarization control
  → full automation of measurements

Technology Partners

attocube WITTENSTEIN Group

WITec focus innovations