Fraunhofer IPMS

Fraunhofer Institute for Photonic Microsystems IPMS

Raman microscope with three laser sources

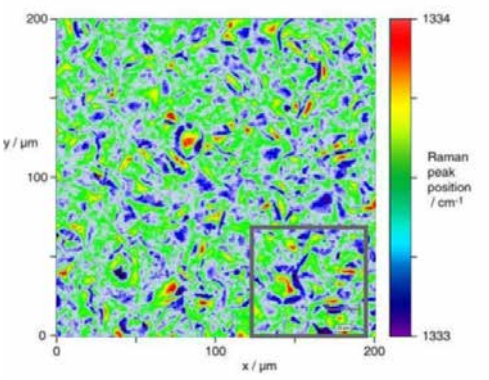
Confocal Raman microscope

Fields of application

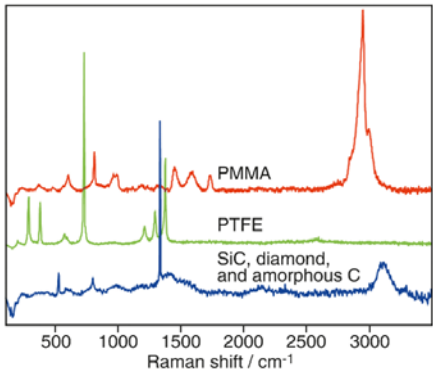
- Non-destructive local optical analysis of
  - MOEMS chips
  - Wafers
  - devices
  - other samples
- Microscopic, spectral material characterization in the range of 100 cm^{-1} to 4200 cm^{-1}

Measurement services

- Characterization of crystallographic properties
  - Lattice structures
  - Crystallinity
  - Interfaces
- Mechanical stress analysis
- Determination of composition and contamination



Raman mapping with 100 nm positioning accuracy



Raman spectra of plastics and semiconductor materials

Part of Forschungsfabrik Mikroelektronik Deutschland

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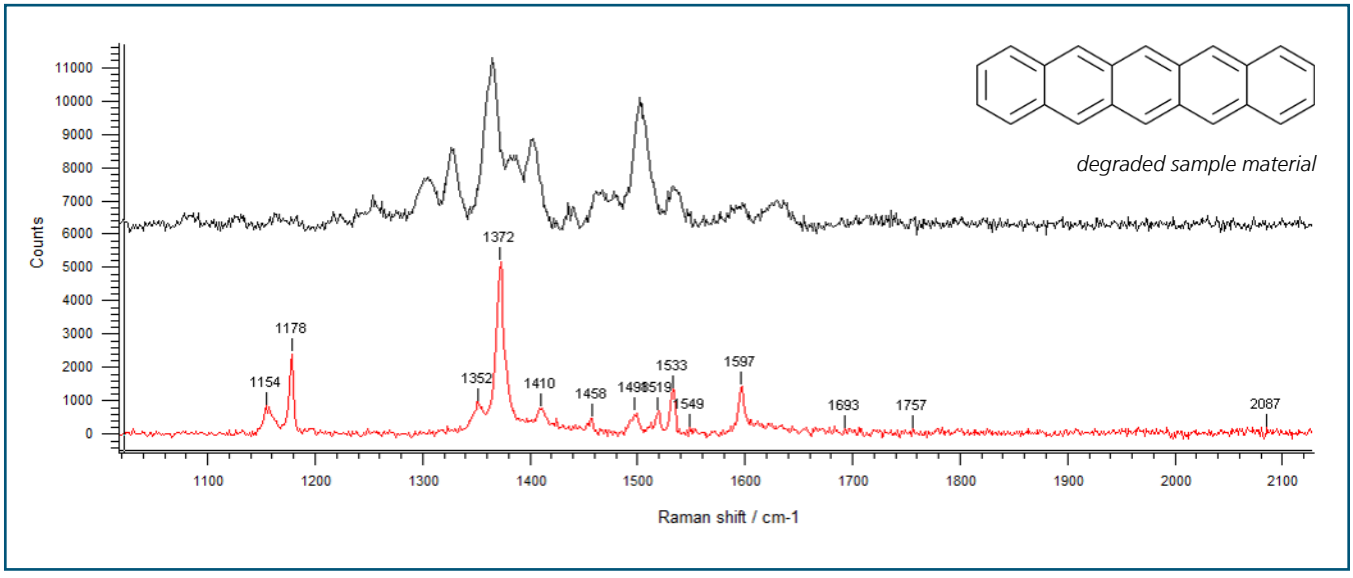
Temperature independent measurements from -196 °C up to 1400 °C

Analysis of a 200 mm Si wafer with 100 nm positioning accuracy

Specifications		
Spectrometer	spectral resolution (FWHM)	1.0 cm^{-1} / < 0.33 cm^{-1}/pixel
	spectral repeatability	< +/- 0.01 cm^{-1} (1σ)
	spectral stability (within 7 hours)	< +/- 0.05 cm^{-1} (1σ)
	cut-off wavenumber (low)	100 cm^{-1}
	cut-off wavenumber (low) - optional	< 50 cm^{-1}
	cut-off wavenumber (high)	< 4200 cm^{-1}
Laser kit	405 nm, 532 nm, 785 nm	> 45 mW (cw)
Microscope	Leica DM2700	NPLAN lens: 5x/NA0.12; 20x/NA0.4; 50x/NA0.5; 100x/NA0.85
Sample holder	X/Y/Z motorized high-speed coding	200 mm x 200 mm sample size 100 nm positioning accuracy
Heating/cooling	active sample heating/cooling	-196 °C - 1400 °C



Material analysis of organic molecules before and after aging using pentacene as an example