

Raman Scattering

Raman spectroscopy is a technique to detect the vibrational or rotational modes of lattice or molecules. There are two types of scattering, Rayleigh scattering, and Raman scattering. Rayleigh scattering is elastic, and Raman scattering is inelastic. When Raman scattering occurs, there is energy differentiate between the incident photons and scattered photons. Raman spectroscopy exhibits this energy differentiate, which corresponds with the specific vibrational or rotational mode of lattice or molecules. Therefore, it is commonly used to identify and analyze the structure and composition of the sample. It also can be combined with a microscope to observe single nanostructures or microscopic areas called micro-Raman spectroscopy.

The peaks of the signals become sharper and more distinguishable at cryogenic temperatures. The phonon-phonon coupling can be studied with temperature-dependent Raman spectroscopy.

Customer References:

Alexander Krylov, Kirensky Institute of Physics, Siberian Branch, Russian Academy of Sciences, Russian: [Cryst. Growth Des.](#) 2014, 14, 3, 923-927 (2014).

Related Products:



X-1AL ECONOMY

- Easy optical alignment
- All purpose
- Low cost

Cryostat Model	Type
DMX-1AL	CCR
FMX-1AL	CCR



X-1SS HIGH PERFORMANCE

- Best for electrical, magnetic, and optical experiments

Cryostat Model	Type
DMX-1SS	CCR
FMX-1SS	CCR
GMX-1SS	CCR
LT3-WMX-1SS	Flow



X-20 ULTRA-LOW VIBRATION

- Vibrations < 3-5 nm
- Quick and easy sample access via pop-off shroud
- High temperature stability

Cryostat Model	Type
CS202-DMX-20	CCR
CS204-DMX-20	CCR
CS210-GMX-20	CCR



LT4

- All-purpose, low cost flow cryostat
- Maintains the high cooling power of the LT3
- UHV option available

Cryostat Model	Type
LT4	Flow