

APPLICATION

RAMAN

In 1928, two Indian scientists C.V. Raman and K.S. Krishnan were looking for the fact that scattered light in substance contains both lights which wavelength is same and not same as incident light. This phenomena is called Raman effect. Scattered light is separated as Rayleigh scattering and Raman scattering, and the power of Raman scattering is 10^{-6} times weaker than that of Rayleigh scattering. The information of molecular structure and crystal structure of substance can be get by measuring Raman scattering spectrum (Raman spectrum) by spectrometer. For example, the difference of Raman spectrum is observed in carbon, diamond and graphite which are consisted of same carbon atoms but their crystal structure is different each other. That is to say Raman spectroscopy equipment is analysis apparatus which observe molecular structure and crystal structure non-invasively by analyzing spectrum of Raman scattering by irradiating with light as laser. The area in which Raman spectroscopy method analyze and know the crystal structure became very local by combining with microscopic technology. This is called Raman microscopy.

The lasers which is used for Raman spectroscopy is He-Cd laser (325nm, 442nm), Ar laser (488nm), DPSS laser (532nm) and Laser diode (785nm). He-Cd laser is used for structural analysis of organic and inorganic compounds, analysis of semiconductor nano crystal, and so on.

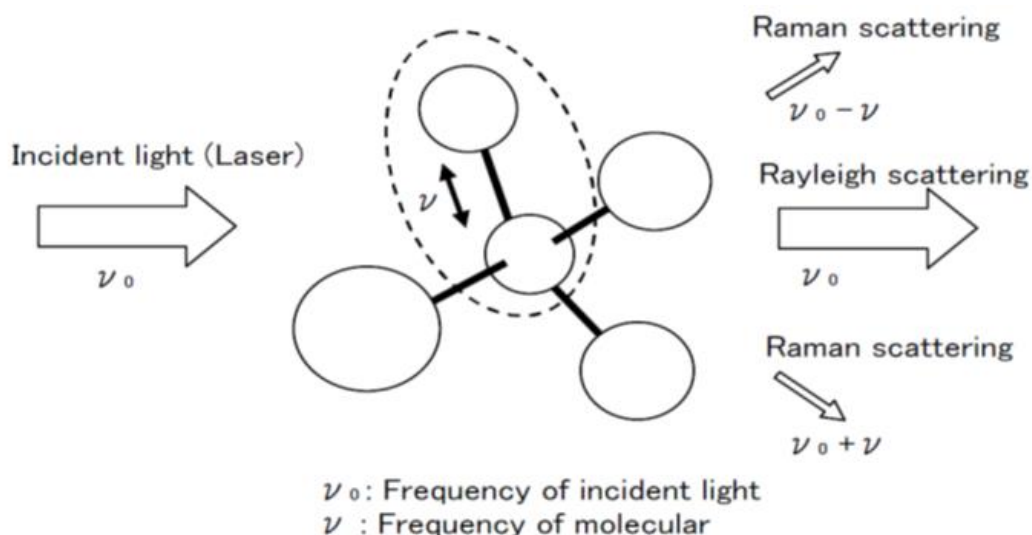


Fig.1 Raman scattering and Rayleigh scattering