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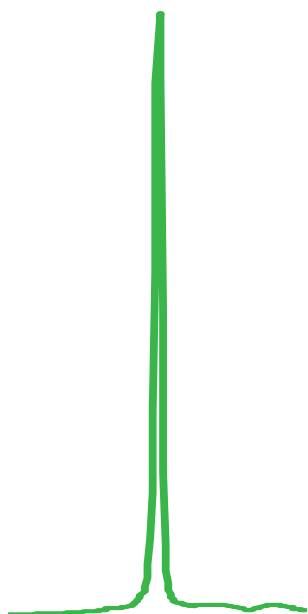
Educational Raman

Raman Spectroscopy Use with Solids in Geology

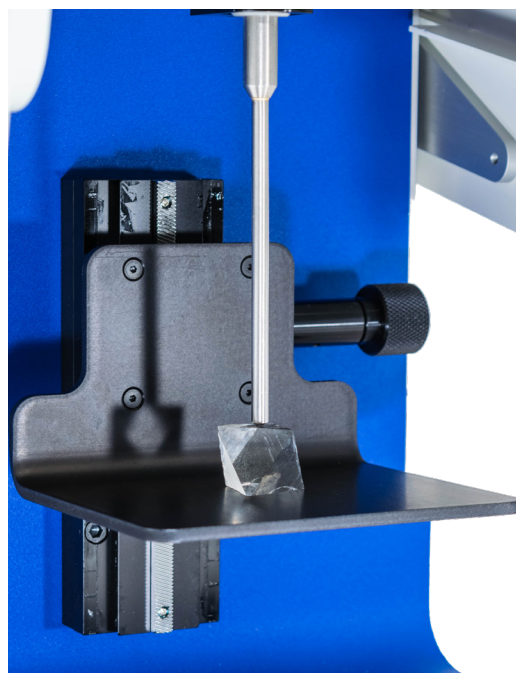
Raman spectroscopy is used by geologists to analyze stones, glass, and minerals and identify them based on their spectra.

Raman spectroscopy is widely utilized to study the chemical composition of solids. One particular group of scientists that employ Raman are geologists. The use of Raman to capture chemical measurements in solids is popular due to its non-destructive nature¹. Solids can be easily analyzed without fear that the original sample will be compromised or chemically altered, a necessity for those analyzing organic, mineral-rich compounds.

The use of Raman allows geologists to analyze a wide variety of aspects that would otherwise be more complicated to uncover. Through the light scattering process, geologists can study the water content of volcanic glasses, how rocks and minerals perform at high pressures, and the phase transformations of reactions². Additionally, Raman spectroscopy can be used to identify stones. Diamonds, crystalline graphite, and amorphous carbon all have unique peaks within their respective spectra that act as recognizable fingerprints³. Diamond has what can be considered as the most easily identifiable spectra, consisting of a single, sharp peak.



Diamond Spectra



References

- (1) Schotsmans, E.M.J., Wilson, A.S., Brettell, R., Munshi, T., Edwards, H.G.M., 2014. Raman Spectroscopy as a Non-Destructive Screening Technique for Studying White Substances from Archaeological and Forensic Burial Contexts. *J. Raman Spectrosc.* 45, 1301–1308
- (2) Geological Applications of Raman Spectroscopy. (2016, February 21). Retrieved September 24, 2018, from <http://rses.anu.edu.au/news-events/geological-applications-raman-spectroscopy>
- (3) Filik, J. (2005). Raman Spectroscopy: A Simple, Non-Destructive Way to Characterise Diamond and Diamond-Like Materials. *Spectroscopy Europe*, 17(5), 10.