

## **Mainstreaming Raman Spectroscopy for Mineral Identification**

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One of the first, and most common, analytical tasks in geoscience is mineral identification and, for multiple decades, powder XRD (PXRD) has been the standard tool for search/match mineral identification. Unlike PXRD, Raman spectroscopy (RS) can be routinely applied with no sample prep, in situ, on scales down to a few microns, and even in the field with portable instruments. Despite these practical advantages the adoption rate of RS by the geoscience community remains low due to incomplete development of the technique (for minerals), lack of knowledge of and confidence in the technology, lack of instruments optimized for mineral analysis and lack of a reference spectral library that is thoroughly populated and curated and maintained for application to search/match identification. This presentation will review progress that has been made toward improving accessibility and confidence in RS, however, it will give particular focus to the development of a curated spectral library.

Complete library representation of all known minerals is a long term, if not unending goal. In order to create a Raman library that has considerable practical application as quickly as possible a priority grading scale has been constructed to quantify the likelihood that a geoscience investigation will encounter each mineral. The initial release of the Raman library will contain the top 600 minerals on this scale via a combination of curating spectra from [www.rruff.info](http://www.rruff.info) and collecting new Raman spectra on mineral samples obtained from major museums and verified with both PXRD and microprobe analyses.