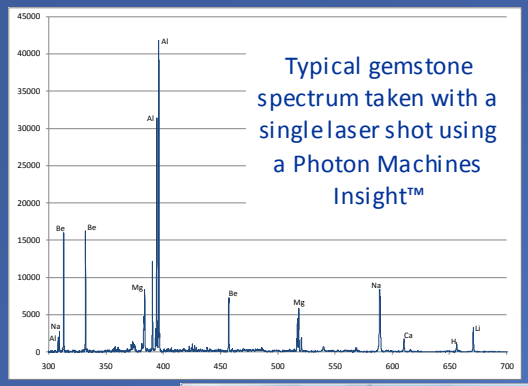
Analysis of Geological Material and Provenance using LIBS

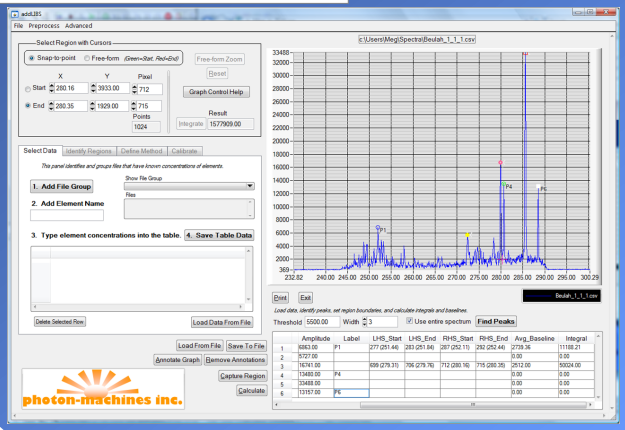
Laser Induced Breakdown Spectroscopy (LIBS)

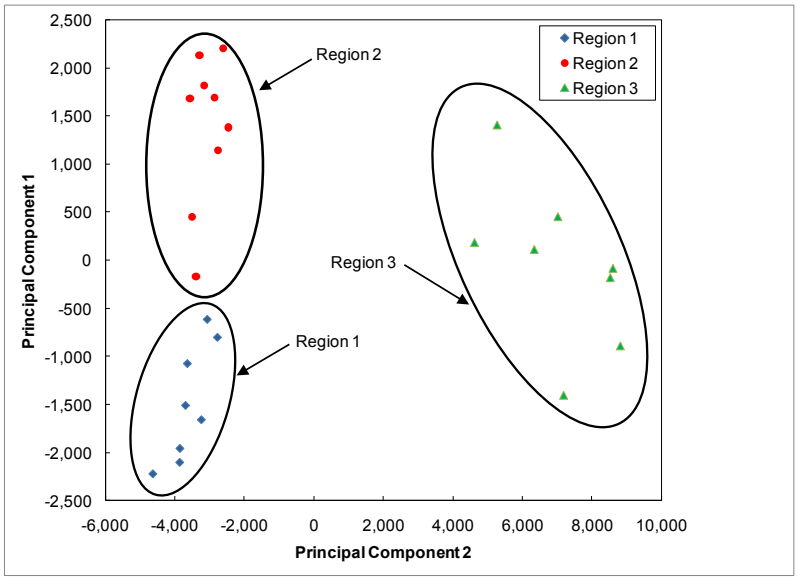
A short, high-power laser pulse, when focused, will ablate and ionize material from a solid surface, creating a plasma. Excited atoms and small molecules in the plasma emit light, which is collected to classify and quantify the measured material.

The Insight™ LIBS system

Photon Machines' Insight™ is excellent for analysis of geological materials. The large sample chamber can accommodate a variety of samples sizes, while its sub-10 micron spot leaves little or no trace on polished materials. Free-space laser launching heads (outside of a chamber) and portable systems are available for very large samples and/or field applications. The lab system features high-resolution video, computer-controlled x-y-z stages for controllable, patterned targeting on-sample, and laser dosage control, with a high-resolution broadband spectrometer. Photon Machines' plug-and-play approach to hardware and software means that we can easily configure a system tailored to your particular needs.







Software makes complicated analysis easy

Powerful chemometrics allows identification of source region (provenance) and/or subtype for geological materials. At left, analysis of identical-looking rock samples correctly identifies the region of origin. Photon Machines' addLIBS™ software (above) facilitates building of repeatable methods with a "run" or "operator" mode that allows non-specialist users to obtain calibrated results. At the same time, addLIBS™ gives the LIBS analyst powerful tools to scan and pre-process, and analyze spectra with a range of methods, including MLR, PCA, PCR, PLS, and PLS-DA. Give us a call to find out more, we'd be happy to address your application.

Photon Machines, Inc.
15030 NE 95th Street
Redmond, WA 98052

Web: www.photon-machines.com
Email: info@photon-machines.com
Tel: +1.425.296.6400