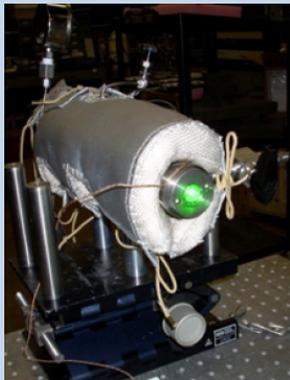


Nuclear Forensics

Research

Develop combined Laser-induced breakdown spectroscopy (LIBS) and Raman spectroscopy instrumentation to analyze elemental compositions in a variety of samples.



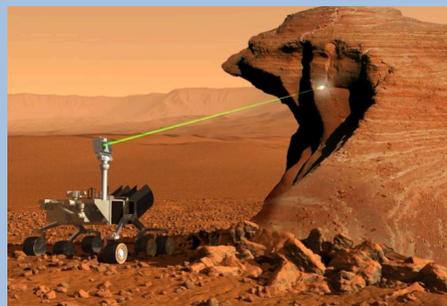
High-pressure, high-temperature chamber used to simulate conditions on Venus for analysis by LIBS and Raman spectroscopy.

- Combined molecular and elemental composition techniques in one instrument enable more accurate/complete identification of samples
- An integrated Raman-LIBS instrument is sensitive to mineralogy in geological samples *and* can also determine elemental compositions

Development

No-touch assay of materials in a matter of minutes

- Safe, portable, accurate, cost-effective tool for treaty verification
- Part of the IAEA “tool box” for international inspections related to nuclear materials
- A CRADA with Chevron is developing LIBS for oil refinery safety inspections (post 2012 explosion in California)
- Onboard Mars rover, Curiosity, discovered ancient streambed



Mission Impact

Backpack LIBS inexpensively takes atomic emission analysis from a traditional laboratory setting into the field, making it possible to detect, verify, and study indicators of nuclear proliferation.



LIBS is in backpack form for use by IAEA inspectors.