LIBS instrumentations (laser sources, spectrometers, detectors)

Sabsabi, Mohamad

LIBS INSTRUMENTATION

Mohamad Sabsabi
Industrial Materials Institute
National Research Council of Canada
75 Boul. De Mortagne
Boucherville, Québec, J4B 6Y4
Canada
Email: mohamad.sabsabi@cnrc-nrc.gc.ca

Abstract :
This course is designed to give participants a critical awareness of the analytical capabilities of LIBS and the components used in LIBS instrumentation. It should be of particular benefit for spectroscopists or newcomers interested in developing LIBS facilities. Discussion topics will include laser, spectrometer and detector selection for LIBS experimentation. The use of particular diagnostics to warn the LIBS experimentalist when either the instrument is malfunctioning or conditions may result in an analysis error will be discussed. Answers to key questions leading to a purchase decision will be presented. Should I purchase a simultaneous, a sequential or a combination LIBS system using echelle spectrometer, Czerny Turner or Rowland circle spectrometer? Which kind of laser should I choose for my application? How much spectral resolution do I really need for my LIBS set-up? Would a low cost system perform as well for me as a higher priced system? Information on the latest innovations in commercial instrumentation or components for LIBS will be presented.

Keywords: LIBS instrumentation, laser, detector, spectrometer, LIBS analysis and plasma diagnostics