BLADE laser series from Compact Laser Solutions GmbH, Berlin – a viable alternative to lasers typically used in LIBS and Raman Spectroscopy

A scientific publication acknowledged the BLADE laser series from Compact Laser Solutions GmbH, Berlin, specifically the model BLADE IR25 (1064nm) featuring optional switching to frequency-doubled mode (532nm), as viable alternative to lasers typically used in LIBS and Raman spectroscopy. The published article: 'Assessment of suitability of diode pumped solid state lasers for laser induced breakdown and Raman spectroscopy' from: Marek Hoehse, Igor Gornushkin, Sven Merk and Ulrich Panne, available at JAAS (***Journal of Analytical Atom Spectrometry,***, 2011, Advance Article), provides the detailed contents. (http://pubs.rsc.org/en/Content/ArticleLanding/2011/JA/C0JA00038H)

Please read in the following some extracts from the paper:

"…following the development of laser technologies: from microchip and powerchip lasers with only 10mJ and 50 mJ of the pulse energy, correspondingly (model JDSUniphase, Nanolase, Meylan, France), to recent DPSS lasers with more than 1 mJ of the pulse energy and 25W of continuous power (Blade YVO4IR_25, Compact Laser Solution, Germany). This pulse energy is sufficient to breakdown virtually any material by focusing the laser with conventional optics. The high repetition rate provides such a large mass ablated that LIBS with DPSS lasers can outperform LIBS with FLPSS lasers even when the latter is operated in a double pulse mode.…

Conclusions
We demonstrated that DPSS lasers present a viable alternative to lasers typically used in LIBS and Raman spectroscopy. They offer the distinct advantages of low cost, compact size, small weight, and high durability. Their robustness and long operational lifetimes are well suited for heavy-duty industrial applications. In particular, we demonstrated that LIBS with the DPSS laser provides the competitive performance as compared to conventional FLPSS-LIBS. Despite a short plasma lifetime which limits a number of detectable photons, the high repetition rate overcomes this drawback and enables the detection of thousands of laser-induced plasmas per second. The high ablation rate results in LODs in the lowest ppm range that are among the best LODs for LIBS and can easily compete with the performance of double pulse LIBS…. "

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