
Potentials in Archaeology of the Violet Stimulated Luminescence (VSL) signal of quartz

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Abstract

Since the first experiments conducted by Jain (2009) for probing deep traps in quartz using violet photons, with the aim to extend the dating range accessible with this natural dosimeter, a series of methodological experiments have been made for better characterizing the Violet Stimulated Luminescence (VSL) signal (Ankjaergaard et al., 2013; Hernandez & Mercier, 2015).

In particular, it was shown that the VSL signal exhibits a dose saturation level which is about 20 times higher than what is usually observed with the OSL signal of quartz, and that the thermal stability of the VSL signal is excellent with a lifetime of 1011 years. In parallel, the first application of this signal to date geological samples has been realized (Ankjaergaard et al., 2015).

In our poster, we report measurements of the VSL signal performed with a Lexsyg Research system (Freiberg Instruments GmbH) conducted for improving a single aliquot regenerative (SAR) dose protocol. First applications to samples of known ages coming from archaeological sites are also reported.

References:

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