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Luminescence dating of last interglacial coastal deposits of Cyprus: overcoming quartz complications by elevated-temperature Infrared Stimulated Luminescence (IRSL) from feldspars.

Evangelos Tsakalos, Constantin Athanassas , and Yannis Bassiakos

National Centre for Scientific Research N.C.S.R. "Demokritos", Laboratory of Archaeometry, Institute of Materials Science, Athens, Greece (tsakalos.e@gmail.com, +30-210-6519-430)

When dating samples from a coastal area of South East Cyprus it was revealed that the OSL characteristics of quartz were problematic giving highly scattered and unexpectedly low Des. Deconvolution of the CW-OSL signals showed that the most likely cause for these underestimations was due to a weak fast component, accompanied by a thermally unstable medium component.

Fortunately, recent advancements in luminescence dating have made possible the use of feldspar IRSL instead. Particularly, the "post-infrared infrared stimulated luminescence", known as p-IRIR not only compensates for the problems associated with quartz but also saves all benefits of feldspar dating, such as intense signals under laboratory stimulation and considerably higher saturation levels, and additionally deals with the problem of anomalous fading.

The potential application of an elevated temperature p-IRIR SAR protocol developed by Thiel et al. (2011) for feldspar is examined for seven late Pleistocene coastal aeolian and littoral samples from a coastal site in south east Cyprus. Published radiometric ages from the same site put additional significance on evaluating the effectiveness of p-IRIR dating, as independent age control on the latter remains scarce in literature to date. Indeed, p-IRIR and published radiometric ages for Cyprus are in a good agreement. Ages are in stratigraphic order assigning the formation of the studied deposits to the Last Interglacial stage.

The p-IRIR dating was concluded to be a reliable technique for establishing precise and accurate chronologies and a trustworthy alternative to quartz optically stimulated luminescence (OSL) dating when the quartz luminescence characteristics are unsuitable.