

## Characteristics of various feldspar IRSL signals and their applications

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Recent studies have revealed various recombination processes of feldspar infrared stimulated luminescence (IRSL) signals measured at different preheat and stimulation conditions. These different IRSL signals have very diverse thermal, athermal and bleaching properties. The post-IR IRSL (pIRIR) signals measured at 150°C (pIRIR<sub>150</sub>), 225°C (pIRIR<sub>225</sub>) and 290°C (pIRIR<sub>290</sub>) are most commonly used for dating sediments. However, no widely accepted criteria exist to select preheat and stimulation temperatures for samples with different age ranges and from different depositional environments. It has been known that the pIRIR signal with higher stimulation temperatures is more thermally and athermally stable than the lower temperature signal, however, the higher temperature pIRIR signal is much more difficult to bleach. Therefore the higher temperature pIRIR signal (e.g. pIRIR<sub>290</sub>) is less suitable for dating sediments from difficult-to-bleach environments. The pulsed IRSL signal is also known to be more stable than the conventional IRSL signal. Since the pulsed measurement is performed at a low stimulation temperature, this signal appears to be much better bleachable than the pIRIR signal and therefore more suitable to date waterlain sediments. In the presentation I will also introduce newly developed OSL thermochronology using multiple IRSL signals stimulated at different temperatures, which have different thermal stabilities.

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