Technical University of Denmark

Inaugural Lecture

Professor Kristina Jørkov Thomsen

Illuminating the buried past

May 16th, 2025, 14:30-17:00 Building 101 - Meeting Room 1, 1st Floor

This inaugural lecture will explain how "To see a World in a Grain of Sand" and discuss advantages and limitations of state-of-the-art OSL dating techniques applied to sediments and rock surfaces. It will also highlight exciting new applications with significant societal impact.

The Earth's surface preserves widespread sediment archives which record human evolution and expansion and how the surface has responded to climate change. However, these archives cannot be interpreted without a timescale, i.e., without knowing when the sediment was deposited. Understanding the timing of past events is essential not only for reconstructing the history of landscapes and human activity but also for improving predictions about future climate change and thus helping to assess its potential impact on ecosystems, human societies, and global infrastructure. Optically Stimulated Luminescence (OSL) dating is an absolute and widely applicable chronological technique that measures the time elapsed since mineral grains were last exposed to light or heat, i.e., the time since they were last transported and deposited.

Kristina Jørkov Thomsen is a newly appointed Professor in Luminescence Physics and Applications in Earth Sciences.
She holds an MSc degree in Biophysics from Copenhagen University (2000) and a PhD degree (2003) in Optically Stimulated Luminescence from Copenhagen University.

Kristina specializes in both fundamental and applied research in retrospective radiation dosimetry, with a focus on optically stimulated luminescence (OSL) from natural wide band gap materials, the dynamics of luminescence processes in these materials and the application of luminescence methods to retrospective dosimetry, with emphasis on the Earth Sciences (particularly in geology and archaeology) and accident dosimetry. Her work aims primarily to improve the accuracy and precision of dose estimation, extend the applicable dose range, and develop rock surface luminescence exposure and burial dating techniques.