



22nd International Conference on
Diffusion in Solids and Liquids
22 TO 26 JUNE 2026 | RHODES, GREECE

SHORT BIO:

Professor Martin Månsson is based at the Department of Applied Physics at KTH Royal Institute of Technology in Stockholm, Sweden, where he leads the Sustainable Materials Research & Technologies (SMaRT) group. His research program focuses on understanding and controlling diffusion-driven processes in materials for sustainable energy applications, with particular emphasis on solid-state batteries, hydrogen storage systems, and quantum functional oxides.

A central objective of his work is to uncover the atomic-scale mechanisms that govern ionic transport, phase stability, and functional performance in energy materials. By combining advanced experimental techniques—including muon spin rotation/relaxation (μ SR), neutron scattering, and synchrotron-based X-ray methods—he probes diffusion, magnetic interactions, and structural dynamics across multiple length and time scales. This approach provides direct insight into transport phenomena and microscopic processes that are otherwise difficult to access, enabling a deeper understanding of how materials operate under realistic conditions.

His research bridges fundamental condensed matter physics with applied materials science, translating insights from quantum and strongly correlated systems into the design of next-generation energy materials. In battery research, he uses μ SR as a unique tool to quantify lithium and sodium diffusion on the atomic scale, delivering key parameters for optimizing ionic conductivity and stability. In parallel, his work on hydrogen storage addresses diffusion and reaction mechanisms that control storage capacity, kinetics, and reversibility.

Through extensive collaborations with leading international large-scale research facilities, Prof. Månsson integrates state-of-the-art characterization with interdisciplinary materials design. His work contributes to advancing energy-efficient technologies and supports the development of sustainable solutions for energy storage and conversion.