

# The 101<sup>st</sup> GREEN Seminar



**New Approaches to Study and Prolong the Lifespan of Lithium-Ion Batteries and to Enhance their Energy Density**

*Chair: Prof. Dr. Yoshitaka Tateyama (GREEN)*

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Li-ion batteries have transformed our daily lives by powering laptops and mobile phones, as well as by enabling electric bikes and vehicles. However, despite extensive research efforts, these batteries still fall short of consumer's expectations in charging time, capacity, and cost. Furthermore, the lifetime of batteries needs to be further extended in order to offer a truly sustainable alternative to fossil fuel-based vehicles.

This presentation explores strategies for enhancing Li-ion battery performance, emphasizing the optimization of electrode structures through processes compatible with industrial manufacturing. Additionally, it delves into understanding and mitigating degradation processes in Li-ion batteries, with a focus on extending battery lifetimes. In particular, this research will delve into addressing degradation issues in Ni-rich cathodes and Li-rich cathodes.

**Venue:** Auditorium, 1F, NanoGREEN/WPI-MANA Bldg.,  
Namiki-site

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