14.10.2026 11:00 - 14.10.2026 12:00

From Molecules to Devices: Self-Assembled Monolayers for Perovskite Photovoltaics

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Metal halide perovskites have emerged as highly promising photovoltaic materials, with power conversion efficiencies approaching those of established technologies. Their rapid progress has been enabled not only by advances in perovskite composition and processing, but also by the development of efficient and selective interfaces. In this context, self-assembled monolayers (SAMs) have become an important platform for controlling charge extraction and interfacial energetics in high performance perovskite solar cells. In this talk, I will discuss the emergence of SAMs in perovskite photovoltaics and the key properties that have enabled their rapid adoption as charge-selective contacts. I will then address several open questions that remain insufficiently understood in the field, particularly regarding the relationships between molecular structure, monolayer formation, interfacial properties, and device performance. Finally, I will provide an outlook on future directions for SAM research and discuss how a deeper understanding of these interfaces could contribute to the development of more efficient, stable, and scalable perovskite photovoltaic technologies.

Einladende Person

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Schlagwörter

Veranstaltungsart

Seminar

Kategorie

Forschung

Sprache

Englisch

Kontakt