

## **Internal Webinar**

### **Exploring the Potential of Halide Perovskites for Next- Generation Photovoltaics**

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Devices for radiative to electrical energy conversion provide sustainable solutions to mankind's ever-growing energy demands and, with solar radiation, this is naturally more environmentally friendly than fossil fuel-based electricity. Such devices require photo-active materials to absorb the incident photon energy, which then can be converted into electrical energy through a photovoltaic (PV) effect-based process. We want this process to be as efficient and the device as cheap, stable, and long-lasting as possible. This is where halide perovskite (HaPs) come in, with a unique place among functional semiconductors in general, and with impressive >25% PV conversion efficiencies, notwithstanding simple and low-cost processing. I will first present a rough overview of the PV technology to put HaP PV in perspective and then describe our efforts to understand/improve the electronic quality of the inter(intra)faces in these materials and devices based on them. Time permitting, I will show the results of our efforts to unravel the remarkable dynamic nature of the HaP lattices, which allow them to self-heal damage. Likely it is these features that are at the heart of the exceptional optoelectronic properties of the HaPs and the performance of devices made with them.

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***2:30 PM***

