

Séminaire

Le mardi 6 avril 2021, 14h45

Le séminaire se déroulera en anglais.

Seminar

Tuesday, April 6, 2021, 2:45 p.m.

Interfaces in halide perovskite solar cells

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Abstract: In the past decade, metal halide perovskite (MHP)-based solar cells marked a breakthrough in photovoltaic technologies and reached power conversion efficiencies exceeding 25%. While MHPs exhibit a remarkable defect tolerance, film degradation will eventually deteriorate the optoelectronic properties and hence device performance. A key strategy to substantially enhance the stability is to tailor the interfaces in the device [1]. Here, I will discuss the impact of interface formation on device performance also considering the effect of chemical reactions on interface energetics and durability [2], particularly for our recent research activities on oxide buffer- and transport layers [3]. Furthermore, I will describe how we use photoemission spectroscopy as a key tool to provide guidelines for controlling the chemistry at MHP interfaces.

[1] Christians, J.A. et al. *Nature Energy* **2018**, 3, 68–74.

[2] Schulz, P.; Cahen, D.; Kahn, A. *Chem. Rev.* **2019**, 119, 3349-3417

[3] Raninga, R. D. et al. *Nano Energy* **2020**, 75, 104946

Bio: Philip Schulz holds the position of Research Director at the Centre National de la Recherche Scientifique (CNRS) and pursues his research activities at the Institut Photovoltaïque d'Île-de-France (IPVF) located on the Paris-Saclay research campus. At IPVF, he leads the Interfaces and Hybrid Materials group through a Young Investigator grant in the "Make Our Planet Great Again" initiative of President Macron. Before entering CNRS in 2017, Philip Schulz was a postdoctoral researcher at the National Renewable Energy Laboratory (NREL) from 2014 to 2017 and the Surface and Interfaces Science Laboratory at Princeton University from 2012 to 2014, where he studied interface design in organic electronics and hybrid organic / inorganic solar cells. He received his PhD in physics from the RWTH Aachen University in Germany in 2012, where he was awarded a DAAD fellowship to pursue part of his research at the National Institute of Standards and Technology (NIST).



TOP-SET est un programme de formation FONCER du CRSNG en puissance optoélectronique ayant pour but de façonner une cohorte de personnel hautement qualifié détenant des connaissances approfondies en systèmes optoélectroniques pour rejoindre les rangs d'équipes de recherche et développement.

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