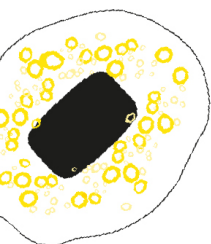


UNIVERSITY OF TWENTE.



## Invitation Colloquium Series | Materials Science and Engineering

### HYBRID HALIDE PEROVSKITE SOLAR CELLS

**Date: 28 October 2021 | Time: 15:45 – 17:30 hrs**

**This is a hybrid session!**

Join us online via **Zoom:** <https://utwente-nl.zoom.us/j/88147780498>

or in person, at **RA4334\***

\*for students and staff of UT only; max capacity of 40 people (first-come, first-served)

**Presented by:**

**Dr. Monica Morales Masis**

*Associate Professor at the Inorganic Materials Science Group, Faculty of Science and Technology, University of Twente*

**Speakers:**

**Dr. Sjoerd Veenstra**

*Programme Manager Perovskite Solar Cells at TNO – partner in Solliance*

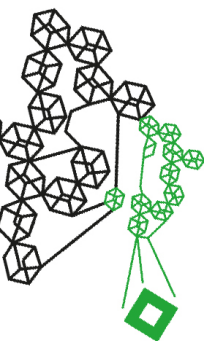
**Prof. Dr. Henk Bolink**

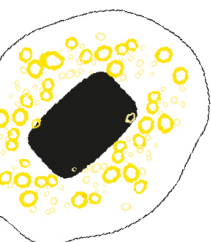
*Professor at the Inorganic Chemistry Department and group leader at the Institute of Molecular Science of the University of Valencia*

**Abstract:**

Perovskites are highly versatile crystal structures. Perovskite crystal structures can accommodate a variety of cations which allows tuning of the materials properties. Hybrid halide perovskites of the form  $APbX_3$  (with A = an organic or inorganic cation and X = I, Br or Cl), have attracted tremendous attention in the photovoltaics field due to their excellent and tunable optoelectronic properties. Thin film solar cells using hybrid halide perovskite absorbers have reached efficiencies above 25% in less than 10 years of development, which is an unprecedented rise in efficiency when comparing to other technologies. However, their roll-out into industry and commercial application of thin film perovskite solar cells require improvements in material instability and the availability of up-scalable production methods.

This colloquium will address the progress and challenges regarding fabrication of these halide perovskite absorbers, solar cell fabrication and scalability prospects.





**Solution-processed halide perovskites for solar cells: materials and scalability challenges** *by Dr. Sjoerd Veenstra*

Solar cells are based on semi-conductors. In general, one can say, that with increasing the quality of the semiconductor, the performance of the solar cell increases. Perovskite solar cells are an exception to this guideline. Thin layers of solution processed perovskite reach very high performance. In the presentation, the methods and current status of solution process perovskite solar cells and small solar modules is discussed.

**Vapor-deposited halide perovskites for solar cells: materials and scalability challenges** *by Prof. Dr. Henk Bolink*

Perovskite based solar cells, mostly employ solution processed perovskite layers. Our group has developed several perovskite based solar cells, using vacuum based perovskite preparation methods. The benefits and hurdles of this dry preparation process will be discussed with the focus on scalability and reproducibility of the preparation method.

**About the Colloquium Series:**

The Materials Science & Engineering Colloquium Series provides a platform for all those who are interested in materials science, whether you are a student, researcher at MESA+, faculty member, or working in industry. During each session, a challenging case will be presented by an expert, for example from industry. All cases are based on a realistic problem where a solution was found by combining existing materials science knowledge and new insights through an experimental or materials system model approach.

**Save the Date for the Next Editions:**

**18 November 2021 | Time: 15:45 – 17:30 hrs**

Join us online via **Zoom** <https://utwente-nl.zoom.us/j/82860937753>

**9 December 2021 | Time: 15:45 – 17:30 hrs**

**13 January 2022 | Time: 15:45 – 17:30 hrs**

