



JOHNS HOPKINS
WHITING SCHOOL
of ENGINEERING

Materials Science and Engineering

SEMINAR SERIES



*Wednesday, Oct. 13
@ 2:30 pm
See event page for Zoom info*

JUAN-PABLO CORREA-BAENA GEORGIA INSTITUTE OF TECHNOLOGY **Understanding carrier transfer across interfaces in metal halide perovskites**

Perovskite solar cells promise to yield efficiencies beyond 30% by further improving the quality of the materials and devices. Electronic defect passivation and suppression of detrimental charge-carrier recombination at the different device interfaces has been used as a strategy to achieve high performance perovskite solar cells. However, the mechanisms that allow for carriers to be transferred across these interfaces are still unknown.

In this presentation, I will discuss the role of crystal surface structural defects on optoelectronic properties of lead halide perovskites through synchrotron-based techniques. The importance of interfaces and their contribution to detrimental recombination will also be discussed. As a result of these contributions to better understanding 2D and 3D defects, the perovskite solar cell field has been able to improve device performance. Albeit the rapid improvements in performance, there is still a need to understand how these defects affect long term structural stability and thus optoelectronic performance over the long term.