

## **High-Performance Perovskite Solar Cells and X-ray Detector Technologies with Commercialization Significance**

**Project Description:** Being a class of low-cost, solution-processable, third-generation photovoltaic technology, organic-inorganic hybrid perovskites have demonstrated rapid development in photovoltaic (PV) performance on solar cells over the past decade and is promising for partial replacement of conventional inorganic PVs (e.g., Si and CdTe), achieving novel PV cells with reduced fabrication costs and improved optoelectronic efficiencies. Meanwhile, because of its high atomic-number constituent elements, halide perovskites find their use in high-performance X-ray detection and imaging and is potentially addressable in low-dose medical applications. This project focuses on realization of commercializable perovskite solar cells and X-ray detector/imager technologies, with the detailed goals being developing large-area, operationally stable, high-PCE, high energy resolution and X-ray-responsive optoelectronic devices.

**Job Description:** We are recruiting a research scholar with materials science and engineering, physics, physical chemistry, or materials chemistry background, to conduct experimental R&D in materials, solar cells, and radiation detection devices. Also, candidate will potentially work with laboratory PI to carry out research conception, experimental design, publication of research findings, and application of research grants. Successful indicator of project completion should be SCI papers published in high-impact journals, application/authorization of technological patents, application of research results in industry. Through the training by the FREE program, candidate will accumulate professional credibility and establish practical skills for pursuing higher academic degrees and job position seeking in industry.

### **Qualifications:**

- Bachelor's or master's degree in materials science and engineering, physics, or chemistry;
- Experience in perovskite material fabrication, characterization and solar cell fabrication is preferred. Experience in research paper publication and patent experience is a plus.
- Ideal candidates should be hard-working, patient, prone to thinking, and have good experimental skill foundation, teamwork ability, and multi-task ability.
- Candidates should proficiently be able to use graphing tools (e.g., Origin, IgorPro, Matlab, powerpoint).