



The Center for  
Light Matter Interaction  
Tel Aviv University

## LMI Seminar:

### Piezoelectricity in low dimensional perovskite and Fully printable solar cells

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**Wednesday May 28<sup>th</sup>, 2025**  
**13:00-14:00**

**Light refreshments and drinks will be served at 12:30**

**Auditorium 011, Engineering Classroom Building, Faculty of  
Engineering, Tel-Aviv University**

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**Abstract:** Recent discoveries have revealed a breakthrough in the field using inorganic-organic hybrid layers called perovskites as the light harvester in the solar cell. The inorganic-organic arrangement is self-assembled as alternate layers, being a simple, low-cost procedure. These organic-inorganic hybrids promise several benefits not delivered by the separate constituents.

In this talk I will present several topics related to hybrid perovskite synthesis and devices. I will show our recent results on fully printable mesoporous indium tin oxide (ITO) perovskite solar cell. In this structure, the perovskite is not forming a separate layer but fills the pores of the triple-oxide structure. One of the advantages of this solar cell structure is the transparent contact (mesoporous ITO) which permits the use of this cell structure in a bifacial configuration without the need for additional layers or thinner counter electrode. In addition to their application in photovoltaics, metal halide perovskites exhibit piezoelectric properties attributed to polarization and the breaking of centrosymmetry in  $\text{PbX}_6$  pyramids. In this section, I will outline our recent investigation into the piezoelectric response of quasi-2D perovskites. Utilizing Piezo-response force microscopy measurements, we characterized these perovskites and illustrated their potential functionality in pressure sensors.