

**Azadeh Mazloom (IASBS, Iran):**

**Title:** "Transport Properties of Buckled Honeycomb Lattices"

**Abstract:** In this talk, I will present our recent results on the transport properties of silicone and other buckled honeycomb structures, in the presence of a perpendicular electric field. We theoretically calculate the relaxation times and charge conductivity of these structures in the presence of screened charged and short-range scatterers within the semiclassical Boltzmann formalism. We find that the conductivity is an increasing function of the carrier density. Moreover, a sharp increase in the conductivity appears whenever the upper conductance band gets occupied. This makes these buckled structures a suitable candidate for charge switchers.