

## MECHANICAL ENGINEERING STUDENT SEMINAR

Wednesday, March 30, 2023, at 13:00,

Online: <https://technion.zoom.us/my/kevinmuhafra>

### **A Discrete Model of Electromomentum Coupling in One Dimensional Materials**

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Willis homogenization theory revealed that the effective linear momentum of elastic composites is coupled with their effective strain, partially as a result of subwavelength asymmetry. Recently, a generalization of this theory to piezoelectric composites further revealed that their effective linear momentum is also coupled with the effective electric field. Here, we provide the simplest possible model—a one-dimensional discrete model—that elucidates the physical origins of this electromomentum coupling and illustrates its mechanism, including local resonances. The resultant conclusions provide intuitive guidelines for the design of this coupling in metamaterials.

Note: the seminar will be given in Hebrew