



*NEBRASKA CENTER FOR MATERIALS AND NANOSCIENCE
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Flexoelectricity in Solids

The flexoelectric effect, defined as a linear coupling between the strain gradient and dielectric polarization, has been taken into account in the theory of crystalline solids for over 50 years now. Originally, this coupling was recognized to be important for the interaction between acoustic waves and electrons in semiconductors, as well as for the lattice dynamics of solids. The flexoelectric effect was also identified as that controlling the appearance of an electric field in shock acoustic waves propagating in centro-symmetric solids. Further theoretical studies have uncovered a number of interesting effects related to this coupling. Recent experimental studies of the direct flexoelectric effect (a linear polarization response to the strain gradient) by professor Cross with coworkers have revealed its high potential for technical applications. Presently, the flexoelectric effect, essentially inspired by this work, becomes an object of extended experimental and experimental studies. This paper provides an overview of the current knowledge developed on the flexoelectric effect in crystalline solids, covering theory, experiment, and applications.

**Host:
Prof. Steve Ducharme
Department of
Physics & Astronomy**

**Friday, February 1—2:30 pm
Room 145 Jorgensen Hall**

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