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Detecting Chiral Magnetic Effect by Lattice Dynamics in Weyl Semimetals¹ ZHIDA SONG, JIMIN ZHAO, ZHONG FANG, XI DAI, Chinese Academy of Sciences (CAS) — In the present paper, we propose that the chiral magnetic effect, the direct consequence of the presence of Weyl points in the band structure, can be detected by its coupling to certain phonon modes, which behave like pseudo scalars under point group transformations. Such coupling can generate resonance between intrinsic plasmon scillation and the corresponding phonon modes, leading to dramatic modification of the optical response by the external magnetic field, which provides a new way to study chiral magnetic effect by optical measurements.

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