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Toroidal moment contributions to the multiferroic acoustic susceptibility[1] ALEXANDER PRICE, TRINANJAN DATTA, Georgia Regents University — We consider the effects of toroidal moment corrections to the acoustic susceptibility tensor of a material that is simultaneously ferroelectric and a canted antiferromagnet (multiferroic). Using the Landau-Lifshitz equation of motion for the magnetization, the Landau-Khalatnikov relaxation equation for the electric polarization, and an equation of motion for the toroidal moment we analytically compute the corrections to the acoustic susceptibility tensor. In the presence of toroidal moment coupling we find that the previously vanishing susceptibility components in the multiferroic channel are now non-zero. Additionally, the toroidal corrections give rise to nonzero, asymmetric susceptibility components in the magnetic, electric, and multiferroic channels with both real and imaginary corrections to the susceptibility.

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