

Use of a Lowest Intensity ^{241}Am Compton Spectrometer for the Measurement of Directional Compton Profiles of ZnSe

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In this paper we report on electron momentum densities in ZnSe using Compton scattering technique. For the directional measurements we have employed a newly developed 100 mCi ^{241}Am Compton spectrometer which is based on a small disc source with shortest geometry. For the theoretical calculations we have employed a self-consistent Hartree-Fock linear combination of atomic orbitals (HF-LCAO) approach. It is seen that the anisotropy in the measured Compton profiles is well reproduced by our HF-LCAO calculation and the other available pseudopotential data. The anisotropy in the Compton profiles is explained in terms of energy bands and bond length. – PACS numbers: 13.60.Fz, 78.70. Ck, 78.70.-g

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