Electron Momentum Distribution of Terbium by Compton Scattering Technique

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We present the experimental Compton profile of polycrystalline terbium, using 661.65 keV gamma-rays, emitted by 20 Ci ^{137}Cs. In the absence of band structure calculations, theoretical computations have been made using renormalised-free-atom (RFA) and free electron based profiles. It is seen that the RFA results with e^--e^- correlation correction agree relatively better with the experiment. The data are interpreted in terms of spd-f hybridization in the valence state of terbium. From the RFA profile, we have also derived the cohesive energy of terbium, which is compared with other band structures and experimental investigations. – PACs Nos. 13.60.F, 71.15.Nc, 78.70. -g, 78.70.Ck

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