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# Triple differential cross section data of (e, 2e) processes on Be, Mg and Ca atoms

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*Domain* : Low Energy Electron-Atom Interactions

The ionization of atoms, ions and molecules by electron impact are the basic processes of atomic and molecular physics, with fundamental applications in different areas as fusion physics, plasma physics, advanced fusion technologies, condensed matter physics, surface science etc. Electron coincidence experiments in which an incoming electron knocks out a bound electron in a collision with target and the two outgoing electrons are then detected in coincidence with defined kinematics are known as (e, 2e) experiments. Such types of investigations have been done to study the momentum distribution of valence electrons in atoms and molecules [1]. Extensive studies of (e, 2e) processes have been reported on various targets including hydrogen, helium, rare gases and alkali targets [2-3]. Recently, Purohit et al [4-5] have calculated triple differential cross sections (TDCS) and spin asymmetry in (e, 2e) processes for lithium like ions and helium like ions using distorted wave Born approximation (DWBA) formalisms. We present in this communication the results of our calculation of TDCS in (e, 2e) processes for alkaline earth targets Be, Mg and Ca atoms in coplanar symmetric geometry. We have performed the calculation in DWBA [1] formalism using spin averaged static exchange potential. We compare the results of our calculation of TDCS for Ca atom with the available experimental data [6].We also present the results of our calculation of TDCS for the inner- shell (e, 2e) processes on Be, Mg and Ca atoms. The inner-shell ionization provides an understanding of the effect of nuclear charge on angular profile of TDCS, particularly on the recoil peak. We will discuss silent features of the inner-shell ionization which are different from outer-shell ionization. The effects of incident electron energy, distortion, polarization on the inner-shell and outer shell ionization will also be discussed for the alkaline earth atoms investigated by us

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