Contribution ID : 44

Exclusive Charmonium +γ production using Coulomb plus power potential

Content :

Recently the Belle and Babar collaborations have made rapid progress in the measurement of the cross-sections for exclusive J/Ψ +ηc production from e+ e- annihilation [1, 2]. The exclusive quarkonia production processes e+ e- $\rightarrow$ H + γ at the centre of momentum (CM) energy $\sqrt{s}$ =10.58 GeV are computed based on the NRQCD formalism [3]. The different parameters of the formalism are taken from our investigations for the charmonia mass spectra in the framework of the non-relativistic coulomb plus power potential model [4, 5]. Our results for the production cross sections of H = ηc (1S, 2S), calculated using the spectroscopic parameters for the potential exponent lying between $1.0 \leq \upsilon \leq 1.5$ are found to be in the range 68 – 84 fb for ηc(1S) and 43 – 69 fb for ηc(2S). These values are in accordance with the predictions of other theoretical [3] as well as with the available experimental results.

Refrences:
[1] K. Abe et al.(Belle Collaboration), Phys. Rev. Lett. 89, 142001 (2002); Phys. Rev. D 70, 071102 (2002).
[2] B. Aubert et al. (BABAR Collaboration), Phys. Rev. D 72, 031101 (2005).
[3] H S Chung et al. , Phys. Rev. D 78, 074022 (2008).
[4] Ajay Kumar Rai, B Patel and P C Vinodkumar, Phys. Rev. D 78, 055202 (2008).
[5] B. Patel and P C Vinodkumar, J. Phys. G: Nucl. Part. Phys. 36, 035003 (2009).

Primary authors : Dr. PATEL, Bhavin (LDRP-Institute of Technology and Research Ghandhinagar, Gujarat)

Co-authors : Mr. MAJETHIYA, Ajay (Kalol Institute of Technology and Research center, Kalol-382721, Gujarat) ; Mr. PARMAR, Arpit (Dept. of Physics, Sardar Patel University, Vallabh Vidyanagar, Gujarat, India) ; Prof. P C, Vinodkumar (Dept. of Physics, Sardar Patel University, Vallabh Vidyanagar, Gujarat, India)

Presenter : Mr. MAJETHIYA, Ajay (Kalol Institute of Technology and Research center, Kalol-382721, Gujarat)

Session classification : --not yet classified--

Track classification : --not yet classified--

Type : --not specified--