Abstract Submitted
for the GEC17 Meeting of
The American Physical Society

Electron impact ionization of Methane at intermediate energy[1]
ESAM ALI, Missouri Univ of Sci Tech, ZEHRA OZER, Department of Physics, e-COL Laboratory, Afyon Kocatepe University, 03200, Afyon, Turkey, CHUAN-GANG NING, Department of Physics, State Key Laboratory of Low-Dimensional Quantum Physics, Tsinghua University, Beijing 100084, China, JAMES COLGAN, Theoretical Division, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, MEVLUT DOGAN, Department of Physics, e-COL Laboratory, Afyon Kocatepe University, 03200, Afyon, Turkey, DON MADISON, Missouri Univ of Sci Tech — We have investigated the triple differential cross sections (TDCSs) for the electron impact ionization of the $1t_1$ state of molecular CH_4 at 250 eV for asymmetric coplanar geometry with the scattering angles of 10^o, 20^o, and 25^o at fixed ejected energies 30 eV and 50 eV. The experimental measurement are compared to molecular 3-boday distorted wave (M3DW), where the theory used two different calculations by using proper average (M3DW-PA) and orientation averaged molecular orbital (M3DW-OAMO) approximation. The theory predicts the shape and the structure of cross section for experiment. Overall, the M3DW-PA show better shape agreement with experiment more than OAMO calculations.

[1]This work was supported by NSF

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Date submitted: 31 May 2017 Electronic form version 1.4