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Proton Impact CH_4 Scattering below 1.5 keV: A Simulation Study[1] EDWIN QUASHIE, Department of Physics, Florida A&M University, Tallahassee, FL-32307, ALFREDO CORREAA, ERIC SCHWEGLER, Physical and Life Sciences, Lawrence Livermore National Laboratory, Livermore, CA-94550, BIDHAN SAHA, Department of Physics, Florida A&M University, Tallahassee, FL-32307 — In recent years the study of charge transfer collision has become one of the most active research areas both experimentally and theoretically. It provides not only the fundamental information for atomic, molecular spectroscopy and many body collision dynamics but also has wide applications in astrophysics and fusion research [1]. We report a study regarding the mechanism of charge transfer and direct elastic scattering of H^++ CH_4 at E <1.5 keV. The applied simulation technique relies on the time dependent density functional theory (TDDFT) [2]. Preliminary analysis of the elastic and inelastic scattering along with the details of our calculations will be presented.

[1] B. H. Bransden and M. R. C. McDowell in *Charge Exchange and the Theory of Ion-Atom Collisions*, (Oxford Press, N.Y., 1992).
[2] E. Runge and E. K. U. Gross, Phys. Rev. Lett. **52**, 997 (1984).

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