Computational Study of Low Energy Nuclear Scattering JUSTIN SALAZAR, AJIT HIRA, CLIFTON BROWNRIGG, JOSE PACHECO, Northern New Mexico College — We continue our interest in the interactions between different nuclear species with a computational study of the scattering of the low-energy nuclei of H through F atoms ($Z \leq 9$) from Palladium and other metals. First, a FORTRAN computer program was developed to compute stopping cross sections and scattering angles in Pd and other metals for the small nuclear projectiles, using Monte Carlo calculation. This code allows for different angles of incidence. Next, simulations were done in the energy interval from 10 to 140kev. The computational results thus obtained are compared with relevant experimental data. The data are further analyzed to identify periodic trends in terms of the atomic number of the projectile. Such studies have potential applications in nuclear physics and in nuclear medicine.

Ajit Hira
Northern New Mexico College

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