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Theoretical Study of Low Energy Scattering from Metal Nuclei. BERNADETTE GOMEZ, AJIT HIRA, JOE DURAN, DANELLE JARAMILLO, 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 Silver, Palladium and other metals. Recent work has shown that neutron scattering can be used to record holographic images of materials. We have developed a FORTRAN computer program to compute stopping cross sections and scattering angles in Ag 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 50 to 210 keV. 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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