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Equilibrium charge state distributions of Ni, Co, and Cu beams in molybdenum foil at 2 MeV/u PANAGIOTIS GASTIS, GEORGE PERDIKAKIS, Central Michigan University, DANIEL ROBERTSON, WILL BAUDER, MICHAEL SKULSKI, PHILLIPE COLLON, TYLER ANDERSON, KAREN OSTDIEK, ANI APRAHAMIAN, WENTING LU, University of Notre Dame, ROBERT ALMUS, Central Michigan University — The charge states of heavy-ions are important for the study of nuclear reactions in inverse kinematics when electromagnetic recoil mass spectrometers are used. The passage of recoil products through a material, like the windows of gas cells or charge state boosters, results a charge state distribution (CSD) in the exit. This distribution must be known for the extraction of any cross section since only few charge-state can be transmitted through a magnetic separator separator for a given setting. The calculation of CSDs for heavy ions is challenging. Currently we rely on semi-empirical models with unknown accuracy for ion/target combinations in the Z>20 region. In the present study were measured the CSDs of the stable ^{60}Ni, ^{59}Co, and ^{63}Cu beams while passing through a 1μm molybdenum foil. The beam energies were 1.84 MeV/u, 2.09 MeV/u, and 2.11 MeV/u for the ^{60}Ni, ^{59}Co, and ^{63}Cu respectively. The results of this study mainly check the accuracy of the semi-empirical models used by the program LISE++, on calculating CSDs for ion/target combinations of Z>20. In addition, other empirical models on calculating mean charge states were compared and checked.

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