

Sputtering of Clean and K-Covered Ni Surfaces by Low Energy (< 500 eV)
Noble Gas Ions

김 철훈, 강 현
포항공과대학 화학과

Abstract

Clean and K-covered Ni surfaces are bombarded with low energy (10-500 eV) noble gas ions, and the sputtered ions are measured using a quadrupole mass spectrometer. The sputtering yields for Ni⁺ and K⁺ ions initially increase with energy, and slow down at higher energies. The apparent threshold for Ni⁺ sputtering is observed at the primary energies of ~200 eV (He⁺), ~50 eV (Ne⁺), and ~80 eV (Kr⁺). The threshold for K⁺ sputtering is lower: ~40 eV (He⁺), ~10 eV (Ne), and ~30 eV (Ar²⁺ and Kr⁺). Energy dependency of the sputtering yields is discussed in relation to the projectile-surface momentum transfer, ionization of the sputtered particles, and the differential sputtering probability. Preliminary results of molecular dynamics calculations on the present system are also presented.