

Graphite irradiated by swift heavy ions under grazing incidence

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Highly oriented pyrolytic graphite is irradiated with various heavy projectiles (Ne, Ni, Zn, Xe and U) in the MeV to GeV energy range under different oblique angles of incidence. Using scanning tunneling microscopy, the impact zones are imaged as hillocks protruding from the surface. The diameter of surface-grazing tracks varies between 3 nm (Ne) and 6 nm (U), which is about twice as large as under normal beam incidence. Exclusively for U and Xe projectiles, grazing tracks exhibit long comet-like tails consisting of successive little bumps indicating that the damage along the ion path is discontinuous even for highest electronic stopping powers.