AFM study of amorphous carbon films

Ion Beam Laboratory, Shanghai Institute of Metallurgy, Chinese Academy of Sciences, Shanghai 200050, P. R. China
E. Z. Lou, J. B. Xu and I. H. Wilson
Department of Electronic Engineering and Materials Science and Technology Research Center, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Abstract
Atomic force microscopy (AFM) has been used to study surface structures of amorphous carbon (α-C) films. α-C films were prepared by filtered arc deposition (FAD) technique. AFM revealed that the surface on formed films is uniform and smooth on the nanometer-scale and the root-mean-square roughness of the films surface is calculated to be approximately 0.23 ~ 0.26 nm. The influence of energy of incident carbon ion on the surface structures of α-C films was discussed.