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Investigation of the interface structure in sputtered WSi_2/Si multilayers by in-situ synchrotron X-ray scattering. YIPING WANG, HUA ZHOU, LAN ZHOU, RANDALL HEADRICK[1], University of Vermont, Department of Physics, ALBERT MACRANDER[2], Advanced Photon Source, Argonne National Laboratory, AHMET ÖZCAN, KARL LUDWIG[3], Boston University, Department of Physics — We report on the growth of WSi_2 and Si amorphous thin films by dc magnetron sputtering in a vacuum chamber with 10^{-9} Torr base pressure. In-situ synchrotron X-ray scattering with high temporal resolution has been employed to probe the surface and interface roughness evolution during film deposition. X-ray reflectivity simulations were performed using the IMD software package. It is found that the structure of WSi_2/Si multilayers is with an alternately smooth and rough interface. The ion energy and flux assisting the growth may play a role in inducing this asymmetry in the interface roughness.

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