

Thin films of hafnium oxide were deposited by electron beam evaporation. The films were characterized using X-ray diffraction, X-ray photoelectron spectroscopy and normal incidence transmittance. The films were amorphous, stoichiometric, and transparent down to a wavelength of 300 nm. The optical properties of the films, including the refractive index, the absorption index and the bandgap, were determined. The refractive index, in the visible, was relatively high (1.89). The direct bandgap was found to be 5.41 eV. Absorption was insignificant for wavelengths above 250 nm. A heat mirror was built based on the hafnium oxide/silver/hafnium oxide/glass system. This heat mirror was found to be transparent in the visible with an average transmittance of 72.4 %, and reflective in the near infrared (wavelength = 700 to 2000 nm) with an average reflectance of 67.0 %. Such a heat mirror can be used in applications involving energy-efficient windows.