Special Issue

Magnetron Sputtering Process

Message from the Guest Editor

Ion irradiation is a key tool for controlling the nanostructure, phase content, and physical properties of refractory ceramic thin films grown at low temperatures by magnetron sputtering. However, in contrast to gas-ion bombardment, the effects of metal-ion irradiation on properties of refractory ceramic thin films have not been extensively studied due to (i) low metal-ion concentrations (a few percentage points) during standard direct-current magnetron sputtering (DCMS) and (ii) difficulties in separating metal-ion from gas-ion fluxes. Recently, the situation has changed dramatically thanks to the development of high-power impulse magnetron sputtering (HiPIMS), which provides highly ionized metal-ion plasmas. The discussion of this topic covers aspects ranging from the plasma measurements of the sputtering process to applications of magnetron-sputtered thin films. This Special Issue reviews the current status and future perspectives of the magnetron sputtering technique.

Guest Editor

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