

Low-energy ion induced electron emission from MgO and Cs-doped MgO surfaces

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MgO film has been used as a protective dielectric layer for the electrodes in PDP (plasma display panel) because of its high erosion resistance as well as the high secondary electron emission coefficient (γ_i) under ion bombardment from the plasma.

We have deposited MgO and Cs-doped on MgO films and characterized their surfaces using Auger electron spectroscopy (AES) and Ion scattering spectroscopy (ISS). The γ_i values as well as the ion-induced electron energy distributions (EED) are measured with the low energy noble gas ions, which will be interpreted based on the Auger neutralization mechanism.

The effect of Cs doping in MgO film is to enhance the γ_i value. The EED curve shows increased emission intensity at higher electron kinetic energy. The origin of the effect will be discussed in terms of Cs-derived band-gap states.