

## Diamond like carbon as an alternative material to MgO for plasma display panel

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Plasma display panels (PDPs) are available for commercial sales but beyond the reach of common man due to its high cost. It is expected that with strong R&D and proper optimization of process parameters the prices will come down and in near future PDP will take over other display devices as leading flat panel display systems with large panel areas. In the AC-type PDP, the discharge electrodes are coated with a lead-rich glass dielectric layer, followed by a protective thin film. The main role of the protective film is to protect the dielectric layer from ion bombardment in the glow discharge plasma. Another role is to lower the discharge voltage, which leads to low cost of the PDP. Also film should have high transparency in the visible region. MgO thin film has been widely used as a protective layer for AC-PDP owing to their very low sputtering yield and large secondary-electron emission coefficient [1-3]. However, it is considered that the required property of the MgO film is dependent on high crystallinity and high density. Moreover, MgO is hygroscopic in nature. To overcome these problems, diamond like carbon (DLC) films which is an amorphous material could be an alternative to MgO films. DLC films possess all required properties needed for protection of electrode for PDP. DLC film is very hard, chemically inert, insulating, optically transparent and hydroscopic which could provide excellent ion bombardment protection and high secondary electron emission. At NPL, New Delhi we have realized DLC films for various applications. Recently we have thought to explore the possibility of DLC films as protecting layer for electrodes for plasma display. During the symposium we would like to discuss the properties of DLC films which could make it an alternative material in place of MgO for PDP.

### References:

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