

## An assessment of various techniques for the deposition of MgO films for plasma display panels

**\*P.N. Dixit, Sushil Kumar, C.M.S. Rauthan and R. Bhattacharyya**

Plasma Processed Materials Group, National Physical Laboratory,

Dr. K.S. Krishnan Road, New Delhi-110 012 (INDIA)

\*pndixit@mail.nplindia.ernet.in

### Abstract

The plasma display panel (PDP) has two drive systems of the DC and AC types. In the AC type in PDP, an MgO film is used as electrode protective film. There have been number of techniques for the preparation of MgO film, for example, reactive magnetron sputtering [1], pulsed laser deposition [2], ion beam sputtering [3] and plasma enhanced metalorganic chemical vapor deposition [4], thermal vacuum evaporation[5], RF ion plating [6], and cathodic vacuum arc deposition[7]. MgO film is currently prepared mostly by e-beam evaporation and magnetron sputtering in the commercial setup. The deposition rate of MgO film has been obtained to 70 or 80 Å/sec by vacuum evaporation method [5]. Kim et al. [8] have reported the higher deposition rate and higher packing density of MgO thin films by cathodic vacuum arc deposition technique. The important considerations for these techniques are high deposition rate and uniformity over large area with excellent properties like ion bombardment protection, high secondary electron emission, and high transparent to visible radiation. During the symposium we will discuss about the properties of MgO films grown by various techniques.

### References

1. C. Pan, P. O'Keefe, J.J. Kester, *SID98 Digest 29* (1998) 865.
2. T. Ishiguro, Y. Hiroshima, T. Inoue, *Jpn. J. Appl. Phys. Pt. 1* 35 (6) (1996) 3537.
3. T. Ishihara, M. Motoyama, *J. Ceram. Soc. Jpn.* 97 (1986) 771.
4. E. Fujii, A. Tomozawa, S. Fujii, H. Torii, R. Takayama, T. Hirao, *Jpn. J. Appl. Phys. Pt. 1* 33 (11) (1994) 6331.
5. M. Hakomori, K. Matsuzaki, M. Matsuura, H. Yamakawa, *SID98 Digest 29* (1998) 869.
6. K. Oumi, H. Matsumoto, K. Kashiwagi and Y. Murayama, *Surface and Coatings Technology* 169–170 (2003) 562–565.
7. D. Zhu, C. Zheng, Y. Liu, D. Chen, Z. He, L. Wen, W.Y. Cheung, S.P. Wong, *Surface & Coatings Technology* (2006).
8. J.K. Kim, E.S. Lee, D.H. Kim, D.G. Kim, *Thin Solid Films* 447–448 (2004) 95.