Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

Discharge characteristics of plasma display panel containing traces of impurity gas YOSHIKUNI HIRANO, NHK Science and Technology Research Laboratories, AKINORI ODA, Nagoya Institute of Technology, KEIJI ISHII, YUKIO MURAKAMI, NHK Science and Technology Research Laboratories — To improve the discharge characteristics of plasma display panels (PDPs), we investigate the influence of an impurity gas on the discharge characteristics. Previously, we reported influence of O_2 or H_2 on the discharge characteristics of PDPs with a Ne(95%)/Xe(5%) mixture. Meanwhile, high Xe content discharge gas is well known for improving the luminous efficacy. In this study, we investigated the discharge characteristics of PDPs with a Ne(90%)/Xe(10%) mixture gas with oxygen. As a result, a large amount of O_2 raises the minimum sustaining voltage by reducing the wall charge, because a negative oxygen ion is slowly moved to form a wall charge. This result is similar to that obtained when using 5% Xe, but differ in degree is different in the two cases. Although the wall charge at areas adjacent to the discharge gap slightly decreases when the Xe concentration is 10%, the minimum sustaining voltage is relatively high in this case. Hence, a small amount of O^- ion affects the discharge voltage when the Xe content is high.

[1] Y. Kamiya, Y. Hirano, A. Oda, K. Ishii, Y. Murakami, and H. Hiramoto : Proc. 16th Int. Display Workshop, p. 919 (2009).

Yoshikuni Hirano
NHK Science and Technology Research Laboratories

Date submitted: 11 Jun 2010 Electronic form version 1.4