

Measurement of excited Xe atom's density and its spatiotemporal behavior in the alternating current plasma display panel by laser absorption spectroscopy

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The spatiotemporal behavior of the excited Xe atom's density in the $1s_5$ metastable state has been investigated by the laser absorption spectroscopy in the alternating current plasma display panel with stripe and closed barrier ribs, respectively. The maximum excited Xe atom's densities for the closed and striped barrier ribs are $1.45 \times 10^{13} \text{ cm}^{-3}$ and $1.28 \times 10^{13} \text{ cm}^{-3}$, respectively. The density and the relative VUV efficiency over all spaces for the closed rib is not only higher but also its spatiotemporal behavior is more uniform than those for stripe one.