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### **Obtaining p-type ZnO films by the RBQE method**

ABSTRACT. We have investigated ZnO layers obtained by the radical beam quasi epitaxy (RBQE) method. p-type ZnO epitaxial layers were obtained at  $T = 400$  °C, and Hall effect measurements carried out at  $T = 77$  K and 300 K, at which the resistivity was measured as  $\rho = 5 \times 10^{-2}$  and  $3.1 \times 10^{-3}$   $\Omega$  cm respectively. At  $T = 77$  K, the hole concentration and mobility was  $5 \times 10^{18}$   $\text{cm}^{-3}$  and  $22$   $\text{cm}^2$   $\text{V}^{-1}\text{s}^{-1}$ , respectively, becoming  $8 \times 10^{18}$   $\text{cm}^{-3}$  and  $250$   $\text{cm}^2$   $\text{V}^{-1}\text{s}^{-1}$  at  $T = 300$  K. In the photoluminescence (PL) spectra of p-type ZnO layers bands were observed and identified at  $\lambda = 369.1$  nm,  $\lambda = 374.5$  nm,  $\lambda = 383.5$  nm,  $\lambda = 392.5$  nm and  $\lambda = 401$  nm (at 70 K). It is shown that RBQE technology yields highly monocrystalline ZnO samples with a low concentration of uncontrollable impurities.

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