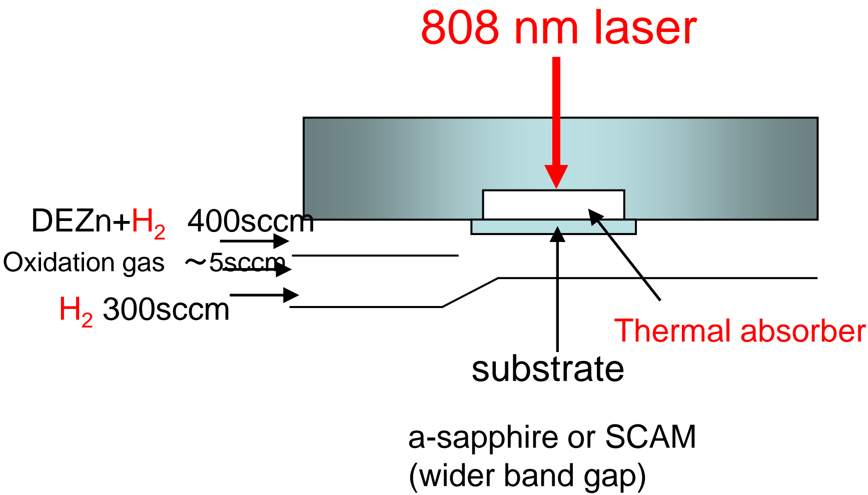
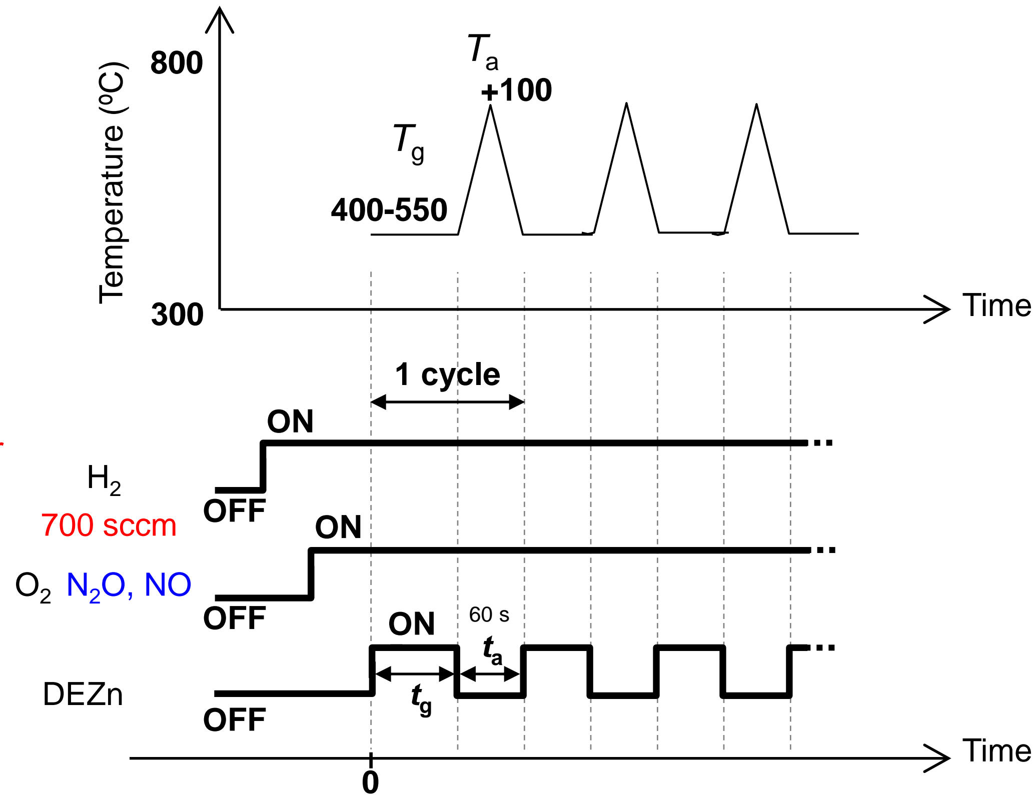
Growth conditions





Sample	Temperature (ºC) (depo./annealing)	Depo/annealing time per cycle (sec)	Pressure (Torr)	DEZn carrier gas (sccm)	VI-source (sccm)	VI/II ratio***	Thickness (μm)
A*	525 / 610	90 / 60	200	100	5 (N_2O)	6	1.4
B *, **	515 / 600	90 / 60	200	30	5 (N_2O)	20	1.1
C	515 / 600	120 / 60	200	30	5 (N_2O)	20	1.2
D	550 / 700	90 / 60	30	11	0.5 (O_2)	22	0.8

* Impurity levels of H, Si, and Al were confirmed to be less than the detection limit in SIMS ($5x10^{17}cm^{-3}$, $2x10^{17}cm^{-3}$, and $3x10^{14}$ cm^{-3})

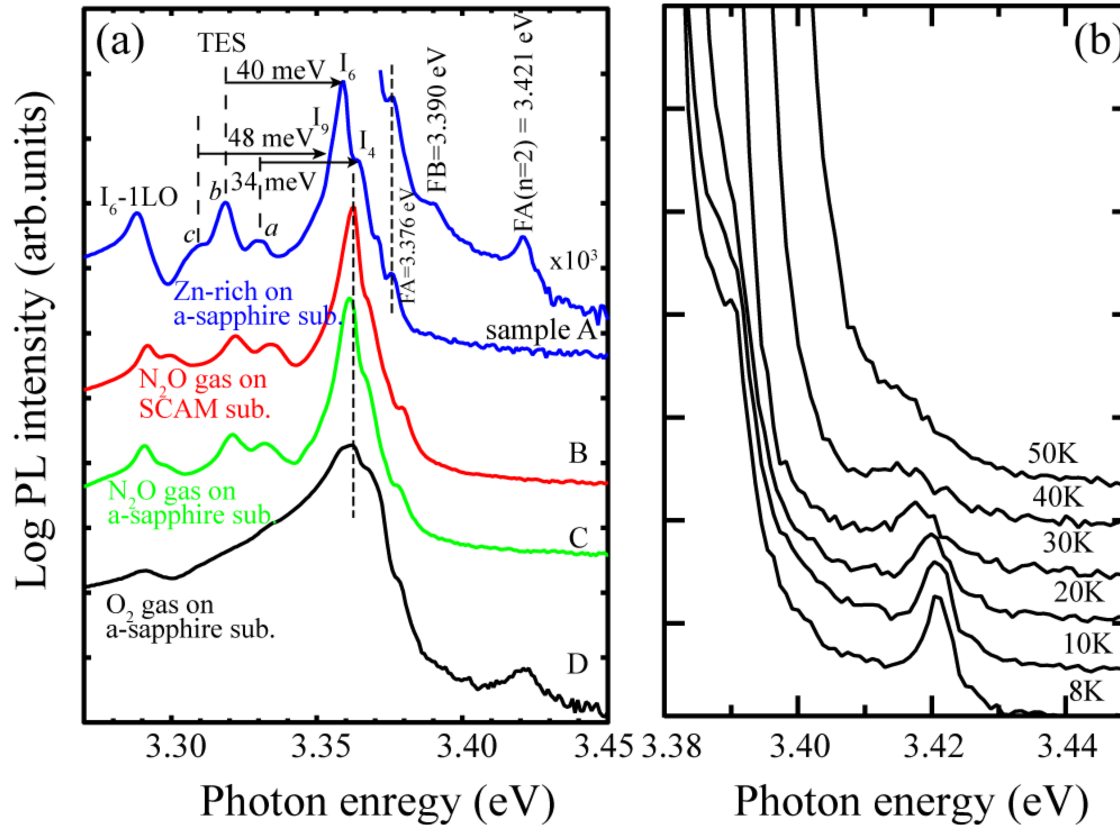
** on SCAM substrate, and the others were on a-sapphire substrate.

PL spectra

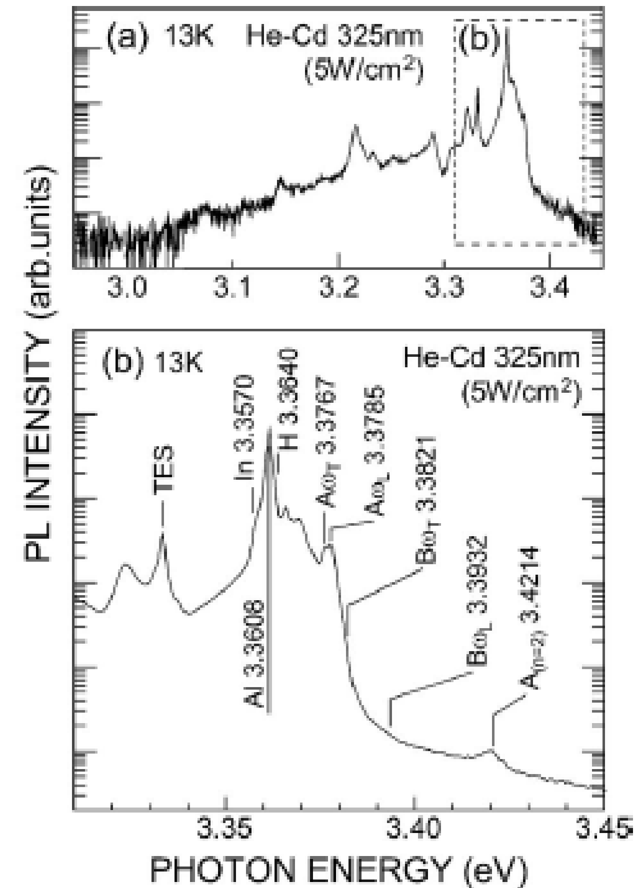
NIMS

DEZn: 30sccm → 100sccm, N_2O: 5sccm

Meyer et al., phys. stat. sol. (b) **241**, 231 (2004).



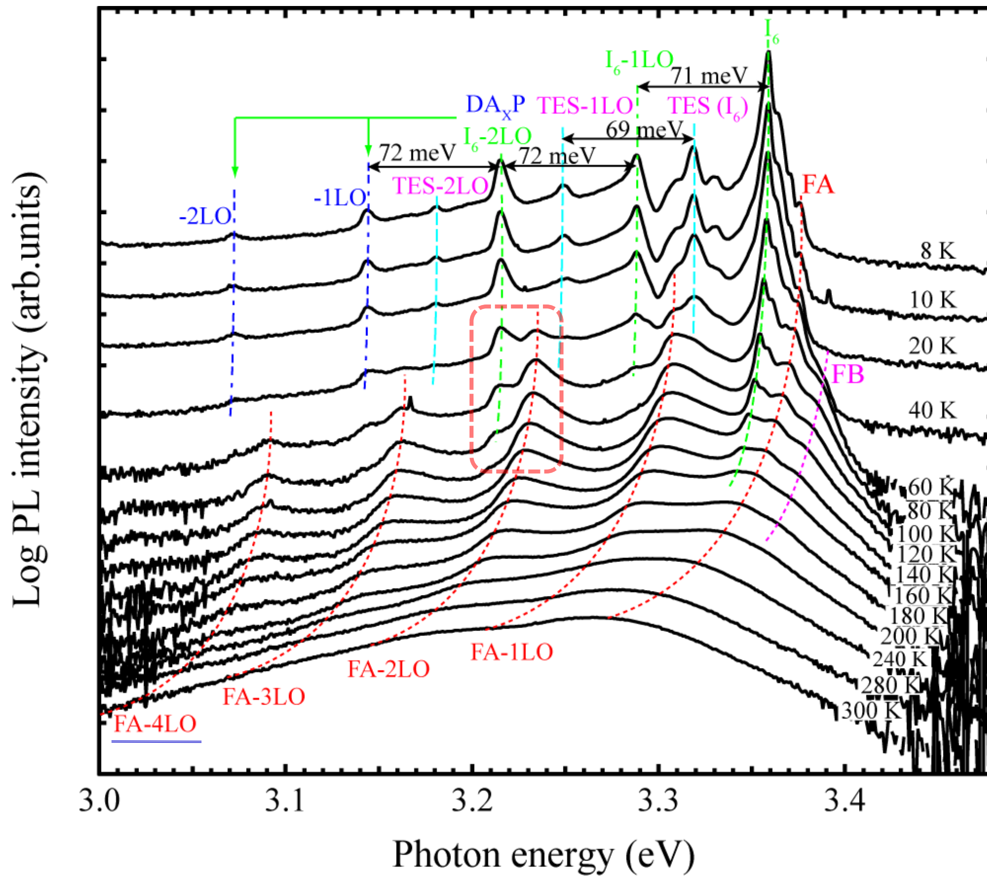
Similar to Makino et al., APL **84**, 3858 (2004).

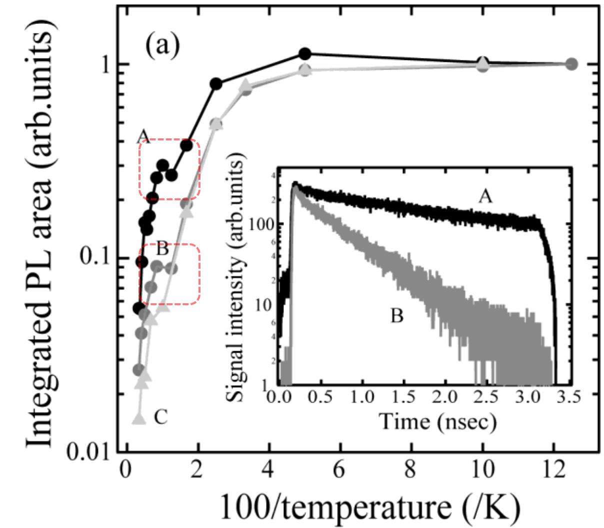


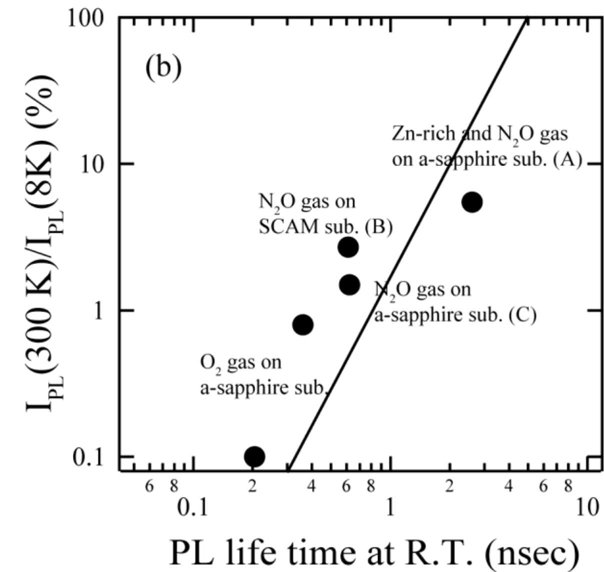
Takamizu et al., JAP **103**, 063502 (2008).

SIMS分析 H量 <5x10^{17}cm^{-3} C量 <2x10^{17}cm^{-3} Al量<3x10^{14}cm^{-3} Si量<2x10^{17}cm^{-3}

Temperature dependence of PL properties







Chichibu et al., **99** (2006) 093505