

Fig. 1: Temperature-dependent UV photoluminescence excitation (PLE) and PL spectroscopy (here shown at 5K for  $\alpha$ -Ga<sub>2</sub>O<sub>3</sub>).

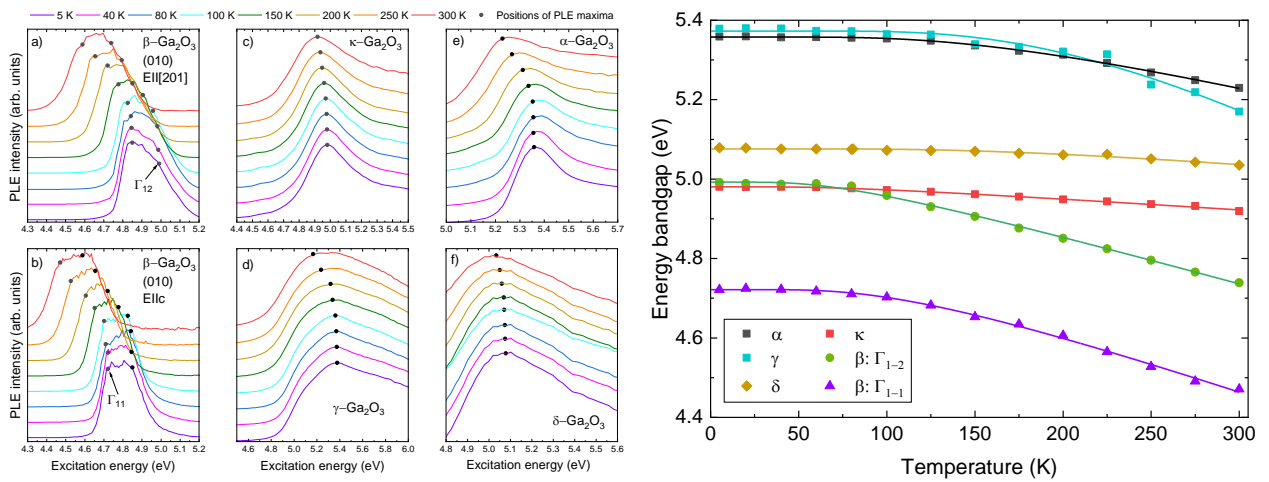


Fig. 2: (left) Temperature-resolved photoluminescence excitation spectra of Ga<sub>2</sub>O<sub>3</sub> polymorphs illustrated in the temperature range between 5 K and 300 K. Spectra are normalized for each temperature step and vertically offset for better comparison. (right) Bandgap energies as a function of temperature shown for different Ga<sub>2</sub>O<sub>3</sub> polymorphs.