



**Fig: a.** In-Situ linearity curve from multi-wavelength ellipsometer at different N<sub>2</sub>/H<sub>2</sub> plasma chemistry. Inset shows single cycles recorded during GaN growth process. **b.** Saturation study plot for GaN showing temperature dependence of growth per cycle. **c.** X-ray diffraction plots got GaN grown at various temperatures. **d.** X-ray diffraction peaks showing crystalline orientation for GaN films grown at different plasma chemistry.