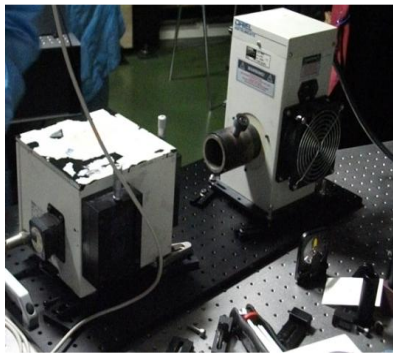
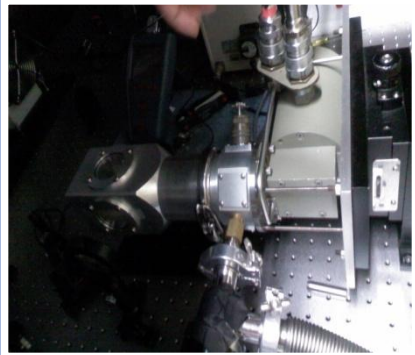


PL Excitation (PLE) System

PLE Equipment



Monochromator & Xe Lamp



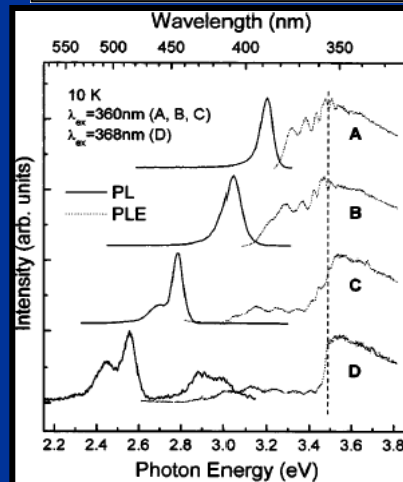
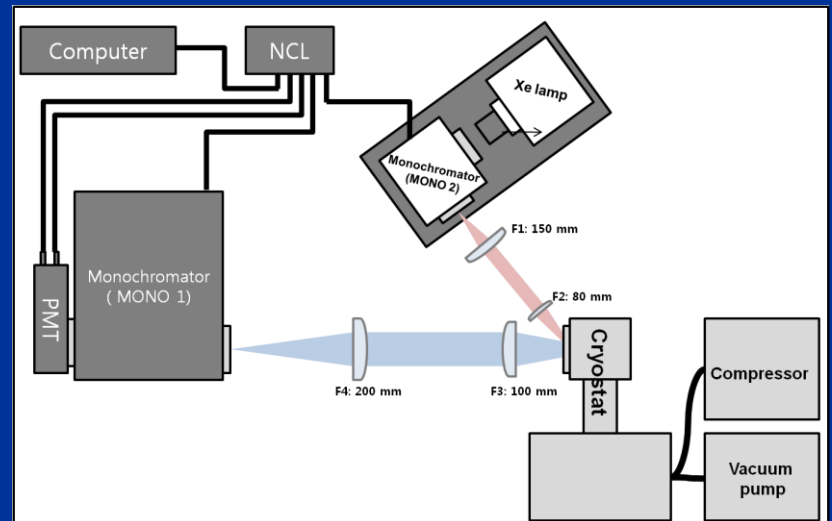
Low Temp. cryostat



Monochromator

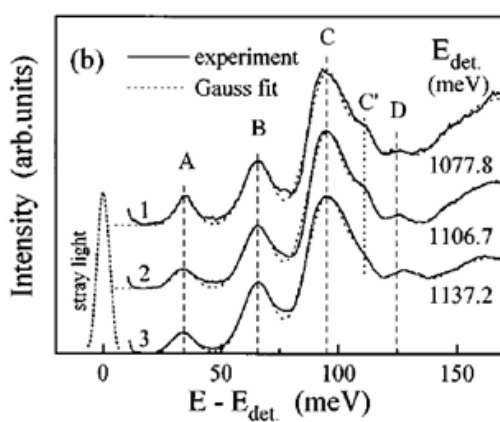
• Photoluminescence excitation (PLE) spectroscopies are performed to measure the energy levels (properties of absorption and recombination) in the sample.

PLE Schematic

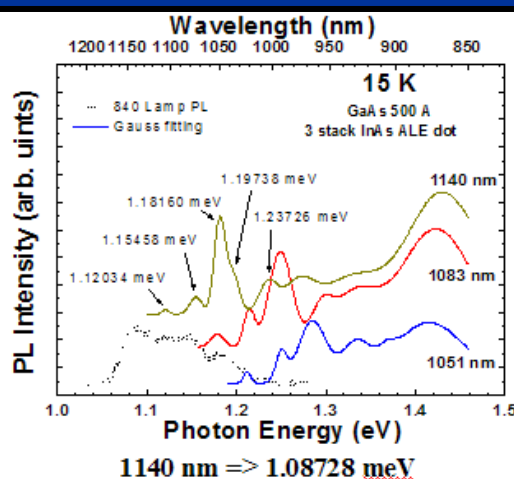


• PLE spectroscopy is the degree of the Stokes-like PL shift increases with In content of the InGaN MQWs.
1) Potential fluctuation
2) The quantum con-fined Stark effect

PLE Spectra for LO-phonon

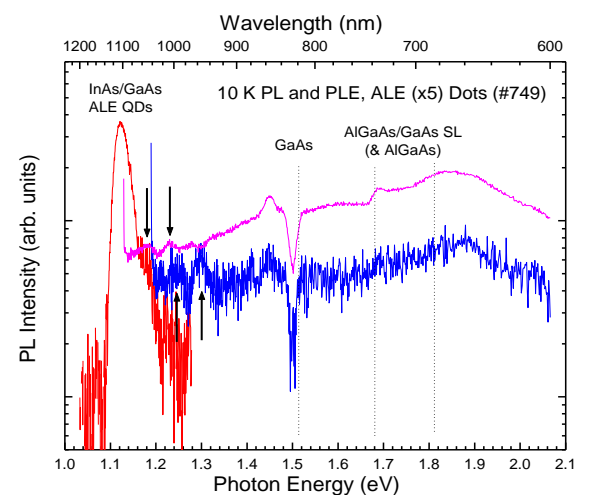


A : 34.1 meV	
B : 65.6 meV	B-A : 31.5 meV
C : 95.0 meV	C-B : 29.4 meV
C' : 111 meV	C'-C : 16.0 meV
D : 124.8 meV	C'-D : 13.8 meV



A : 33.1 meV	
B : 67.3 meV	B-A : 34.2 meV
C : 94.3 meV	C-B : 27.0 meV
C' : 110.1 meV	C'-C : 15.8 meV
D : ??? meV	C'-D : ??? meV

PLE Spectra



• Figure is shown absorption levels of the constituent layers.

- From PLE spectra, absorption band-edges of the constituent layers in each QD structure were clearly observed.
- Near resonant PLE spectra show a series of sharp lines for all the QD samples, and their energy difference with respect to the PLE detection energy does not depend on the detection energy.