

## Influence of Ga Concentration on the Ordering Process of $\text{Ga}_x\text{In}_{1-x}\text{P}$ Grown on GaAs

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## Influence of Ga Concentration on the Ordering Process of $\text{Ga}_x\text{In}_{1-x}\text{P}$ Grown on GaAs

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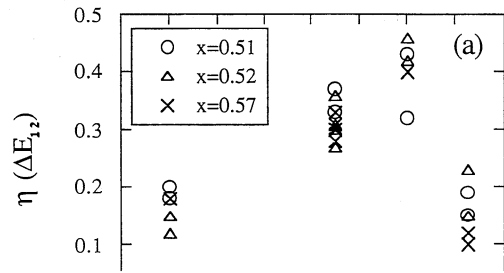
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direct band gap and of the SO splitting, respectively. We

temperature using the  $\text{Ar}^+$  5145 Å line with 15 mW power as an exciting source and analyzed using Dilor's micro-Raman spectrograph with an accuracy of  $\cong 1.0$  meV on the value of  $\Delta E_{12}$ . The concentration  $x$  was determined from Raman scattering with an accuracy  $\Delta x \cong 1\%$ .

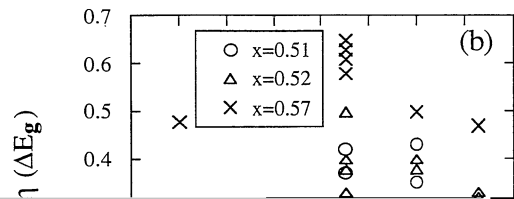
**4. Results and Conclusion**

Figure (3) displays the LRO parameter  $\eta$  vs growth temperature where  $\eta$  was extracted by fitting the measured



eq. (4) [Fig. 3(b)]. We observe the usual<sup>2)</sup> nonmonotonic behavior of  $\eta$  vs  $T_g$  in both cases. Composition variations have a small effect on  $\Delta E_{12}$  and  $\Delta E_g$ , as predicted by the theory of Wei *et al.*<sup>4,5)</sup> (Fig. 1 and eq. (4)).

The symbols of Fig. 2 gives the experimental dependence of  $\Delta E_{12}(x, \eta)$  on  $|\Delta E_g(\eta)|$  for  $x=0.51$  (part a)  $x=0.52$  (part b) and  $x=0.57$  (part c). In all cases, the solid curve gives the theoretical prediction. We see a



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