

## PREPARATION AND STUDY OF n-GaP LAYERS DEPOSITED ON p-Si SUBSTRATES BY LIQUID PHASE EPITAXY

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*GaP films were deposited on Si substrates by Liquid Phase Epitaxy (LPE) in the temperature range between 600 and 750 °C. Under optimum growth conditions, the growth of GaP was observed to take place in a two dimensional fashion. These LPE-grown films have better surface morphology than those corresponding to metal organic chemical vapor decomposition (MOCVD) and atomic layer epitaxy (ALE) grown films.*

### **Introduction :**

Recent advances in the III-V semiconductor compounds on Si heteroepitaxy have received great attention due to the potential advantages of the monolithic integration of III-V optoelectronic devices with Si integrated circuits.

Among the III-V compound semiconductors, GaP is of particular interest for this integration with Si, primarily, because of its small lattice - mismatch (0.37 % at room temperature ) with Si. Also, GaP has been utilized as the material for light emitting diodes (LED) [1], with proper doping. Therefore, from the application point of view, the possibility of growing good quality GaP epitaxial films on the (100) Si substrates is very attractive.

However, several approaches have been used to grow GaP on Si [2,3]. Most of the results were not encouraging. The major problem of the growth of GaP on Si, like GaAs on Si, has been addressed to be the three-dimensional growth mode in the early stages