

# P 型砷化鎵晶圓接合電性與界面形態之研究

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摘 要



N 型砷化鎵晶圓接合已有相當顯著的研究成果，對於 P 型砷化鎵晶圓接合則沒有非常深入的了解。本論文研究之目的，在於對 P 型砷化鎵晶圓接合的界面形態變化對電性的影響，隨著溫度上升電阻下降，順相介面比反相介面電性優異，並且做了不同的退火時間來對照界面形態的變化，發現在相同溫度下介面形態類似。對於原生氧化層的影響也做了研究和探討，以及在各個不同的條件下，界面形態做了比較。主要目的在於了解影響 P 型砷化鎵晶圓接合的主要因素，並利用穿透式電子顯微鏡技術來幫助我們對界面形態的進一步了解。

# **Interface morphology and electrical properties of bonded P-GaAs wafers**

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## **ABSTRACT**



Recently, researches in n-GaAs wafer bonding have revealed significant findings and results. However, there are little researches about p-GaAs wafer bonding; therefore, this study is mainly about factors affect p-GaAs wafer bonding by observation on the morphology of bonding interface through the use of Transmission Electron Microscopy (TEM). The purpose of this study is to discuss: (1) the effect of morphology of bonding interface of p-GaAs wafer bonding on electrical properties ; (2) the relation between different annealing time and the morphology of bonding interface; (3) the effect of native oxide on electrical properties. Comparisons of the morphology of bonding interface under different conditions are also presented.