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(54) Title: III-V/II-VI SEMICONDUCTOR INTERFACE FABRICATION METHOD

(57) Abstract

A method for repeatably fabricating GaAs/ZnSe and other III-V/II-VI semiconductor interfaces with relatively low stacking fault densities in II-VI semiconductor devices such as laser diodes. The method includes providing a molecular beam epitaxy (MBE) system (50, 150) including at least a group III element source (68, 170), a group II element source (72, 92'), a group V element source (70, 172) and a group VI element source (74, 98'). A semiconductor substrate (12) having a III-V semiconductor surface on which the interface is to be fabricated is positioned within the MBE system (50, 150). The substrate (12) is then heated to a temperature suitable for III-V semiconductor growth, and a crystalline III-V semiconductor buffer layer (14) grown on the III-V surface of the substrate. The temperature of the semiconductor substrate is then adjusted to a temperature suitable for II-VI semiconductor growth, and a crystalline II-VI semiconductor buffer layer (16) grown on the III-V buffer layer by alternating beam epitaxy. The group II and group VI sources are operated to expose the III-V buffer layer to a group II element flux before exposing the III-V buffer layer to a group VI element flux.

