

On the initial development of rare earth doped fiber using chelate delivery system

ABSTRACT

In this paper, the initial work on the development of Rare Earth (RE) doped fiber is presented. This work was done using standard MCVD process equipped with chelate delivery system. Later, the characteristics of the developed RE doped fiber parameter and the amplifier performance were analyzed. In this work, Erbium is chosen as the active material due to its sufficient information for analysis and the availability of test equipments. The beam profile and the absorption spectrum of the RE doped fiber is also included to show the level of interaction between pump and signal beam inside the fiber core. High overlap factor between the pump and the signal beam is found to be necessary to achieve sufficient amplification. This is proved by the poor amplifier performance exhibited by the developed doped fiber. This work provides useful information for the development of other RE doped fiber implementation such high power or upconversion fiber laser.