

Enhanced Performance of 980 nm InGaAs/GaAs Single Quantum Well Lasers by Increasing Al-content in AlGaAs Cladding Layers

김광웅* **, 송진동*, 최원준*, 박정호**

*한국과학기술연구원 나노소자연구센터, **고려대학교 전자컴퓨터공학과

The performances of 980 nm InGaAs/GaAs single quantum well (SQW) lasers are enhanced by increasing Al content in AlGaAs cladding layer to 70 %. The lasers are grown by molecular beam epitaxy with same structure except but Al content in AlGaAs cladding layers with 30 % and 70 %. By increasing the Al-content, the threshold current density is decreased by 2.5 times and the characteristic temperature is increased by 2 times. This high Al-content cladding structure can be applied to other lasers such as quantum wire and quantum dot lasers in order to enhance their performances.

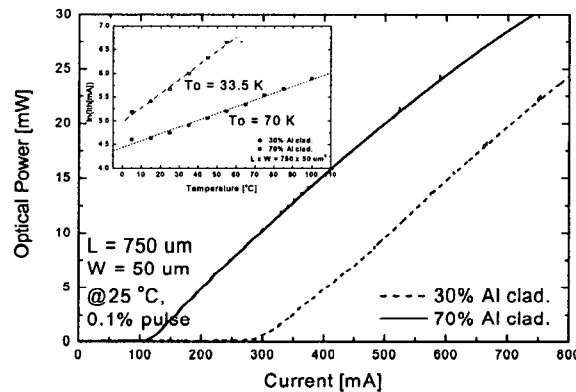


Fig. 3. L-I and temperature characteristics of InGaAs/GaAs SQW lasers with 30 % and 70 % of Al-content in AlGaAs cladding layers