

The effects on the ridge waveguide laser modes by the metallic cladding layer are investigated. The enhanced lateral mode confinement, and increased mode loss are calculated for different metals. It is demonstrated theoretically that a limit on the size of the lateral index step results from the interaction of the fundamental laser mode with the plasma surface wave. As the metallic layer is brought sufficiently near the active layer in the region outside the ridge, degradation of lateral confinement leading to lateral radiation is expected to occur.