Fig. 1
Aixtron 200/4 As/P MOCVD.

Fig. 2
Mask layers used for dual-wavelength laser diodes.
High performance high power semiconductor laser diodes, especially those emitting at around 1μm, are widely used in many fields. In this project, a laser diode array chip with a single electrical contact that simultaneously emits multiple widely-spaced wavelengths will be developed using MOCVD. To achieve multi-wavelength lasing from a single chip, quantum well intermixing (QWI) technology for post-growth energy bandgap tuning of the ~1 μm semiconductor multiple quantum wells (MQWs) will be developed. In addition, high brightness devices will also be developed using a combination of spatial mode shaping/selection (emitter-level) and coherent spatial beam combination (array-level).