

Statement of Work

SCOPE/OBJECTIVE

NASA Langley is seeking a facility for III-V compound semiconductor epilayer growth service with Molecular Beam Epitaxy (MBE) or Metal-Organic Chemical Vapor Deposit (MOCVD) equipment. NASA LaRC will fabricate and deliver total of 60 wafers during 6 months of time. Among these wafers, at least twenty wafers will be processed to fabricate multiples of working devices. The device fabrication will use silicon oxide/nitride deposit, photo-lithography with mask-aligner, wet and dry etching, thermal diffusion.

CONTRACTOR TASKS

III-V compound semiconductor includes selected alloys. Therefore, the service provider shall provide the following materials:

1. GaAs, InAs, AlAs
2. GaP, InP, AlP
3. GaAsN, InGaAsN

The following capabilities of the service provider are as follows:

1. X-ray diffraction analysis
2. Standard CMOS Micro-fabrication capability
3. Additional nitrogen plasma source as well as III-V compound semiconductor sources
4. P-type and n-type dopant control (effusion cells or similar)
5. In-situ characterization during epi-layer growth
6. Metallization capability
7. Automatic growth rate and doping level control

GOVERNMENT FUNISHED MATERIAL

Special substrate wafers for III-V compound semiconductor epi-layer growth will be provided by NASA Langley. Device structure and epitaxy growth methods will be guided by NASA Langley research team. The intellectual properties of patented growth methods, characterization methods, epilayer structures, and device structures & fabrication methods will belong to NASA Langley. No intellectual properties will be exchanged.

PERIOD OF PERFORMANCE

The period of performance shall be 6 months ARO (after receipt of order).