# Veeco MBE Gen II

## Description:

This is a lightly used (less than 4 years total) and particularly well maintained Veeco Gen II, previously used for III-Nitrides deposition. This MBE could be used to grow topological materials, quantum dots, quantum memory, lasers, amplifiers, detectors, and much more. This MBE can be configured to grow Arsenides, Phosphides, Antimonides, Oxides, Nitrides, Dichalcogenides, etc. with few modifications. It has a big CTI-10 cryopump and a 400 l/s ion pump for ultra-pure epitaxial growth potential.

## Details:

- Molecular Beam Epitaxy (MBE) system, 3”
- UHV Growth and buffer chambers
- HV load lock chamber
- Continuous Azimuthal Rotating (CAR) with 3" substrate heater
- (8 + 2) Source ports, 4.50" conflat flanges
- Pyrometer viewport flange, 2.75”
- Heated viewport, 2.75”
- (2) ellipsometer ports, 4.50”
- Gas flow control system
- Electrical growth panel: 208 VAC, 200 A, 50/60 Hz
- Electrical bake panel: 208 VAC, 100 A, 50/60 Hz

## Existing Sources:

- (6) Effusion cells
    - (2) Al
    - Ga
    - In
    - Si
    - Mg
- Veeco plasma source

## Vacuum Pumps:

- CTI Cryo-Torr 10 Cryo pump
- GAMMA Vacuum ion pump for growth chamber (~400 l/m)
- GAMMA Vacuum ion pump for preparation chamber (~280 l/m)
- VARIAN TV301 Navigator TMP (Pumping speed: 250l/sec Nitrogen)
- (2) Titanium sublimation pumps
- (2) scroll pumps

## In-situ Diagnostics:

- SRS RGA 200
- IRCON MODLINE 3 Infrared thermometer sensor
- Staib RHEED Gun
- KSA 400 RHEED Analysis system
- (3) Granville Phillips GP350 Ionization gauge controllers
- Granville Phillips 358 Micron-Ion controller

## Legacy Electronics

- Veeco RF Matching network controller (Auto-tuner)
- Advanced Energy RFX600A RF Generator
- Austin Scientific 320 Cryopump monitor
- (2) VARIAN Sublimation controllers
- RHEED STAIB Instruments power supply
- DIGITEL Multiple Pump Controller (MPC)
- (4) EUROTHERM 2408 Bake timers
- CTI 9600 Compressor