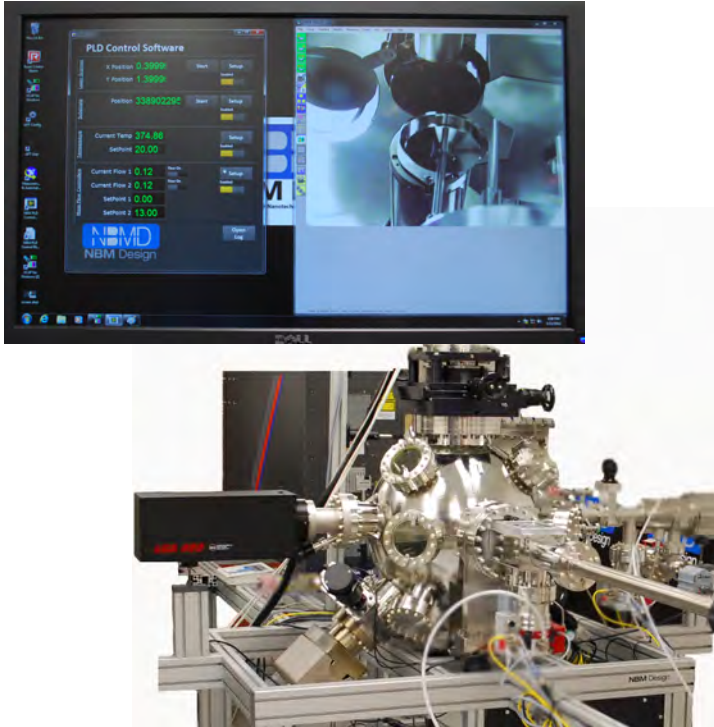


Combining the epitaxial growth of Pulsed Laser Deposition with RHEED provides a tool that can monitor crystal structure of thin-films in real time. The NBMD Laser MBE system is a high-quality turn-key system which includes components that allow the system to reach UHV levels. The integrated load-lock system allows the main chamber to stay at low vacuum levels during target and substrate exchanges.



FEATURES:

Vacuum System:

- UHV spherical chamber (base pressure of 6×10^{-10} Torr) with customized port locations.
- Gas handling: (2) MFC's with automated control.
- Pumps: Oil-free turbo and dry roughing pump.

Target Manipulator:

- Six $\varnothing 1"$ targets or three $\varnothing 2"$ targets.
- Independent rotation and target select axis for high reliability.
- Automated target select available for combinatorial depositions.

Substrate Heater:

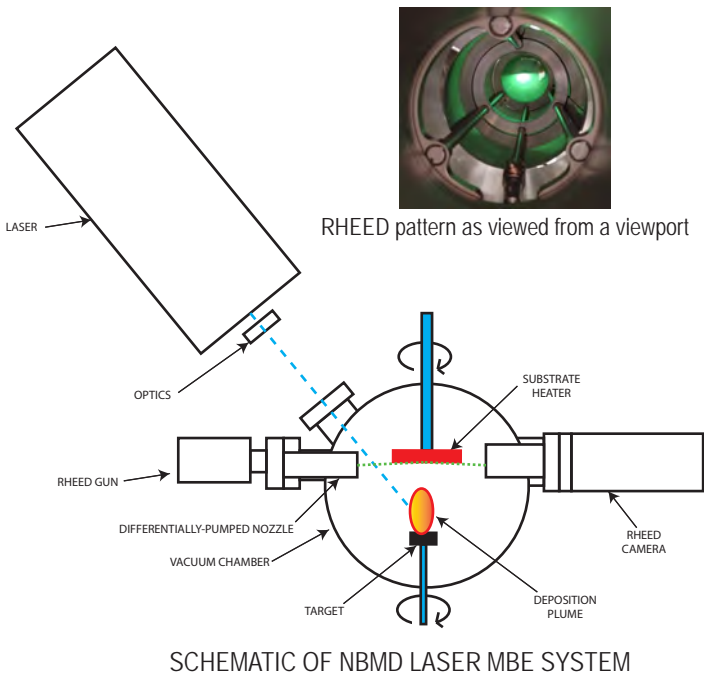
- Rotating or fixed substrate position.
- 1200°C Maximum heater temperature for increased thermal range.
- In-situ X-Y-Z-shift of substrate position.
- Customized substrate carriers for specific substrate sizes.

Universal Load Lock:

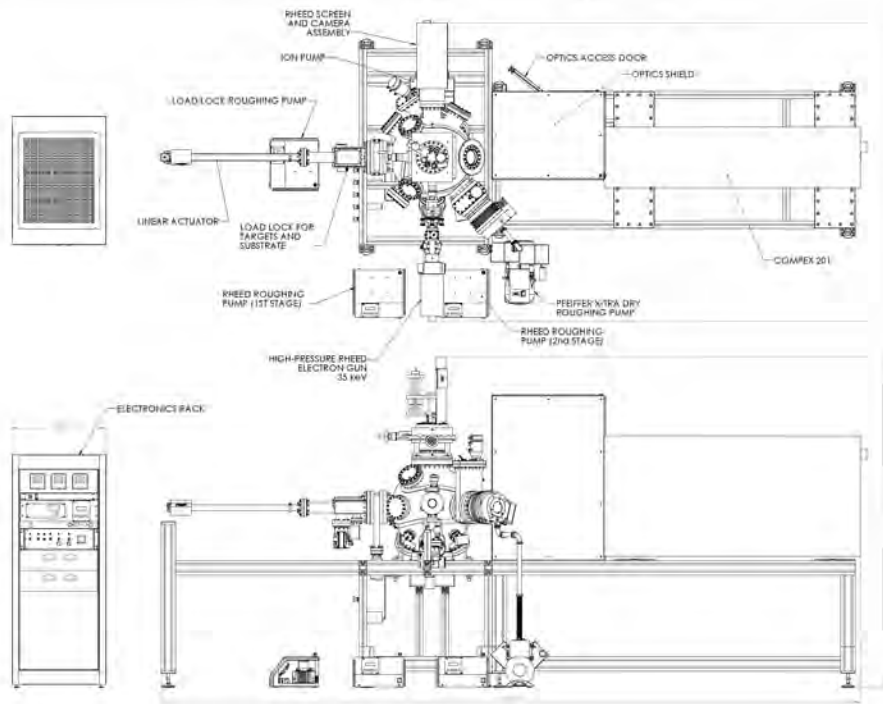
- Remove substrates and targets using a single load lock chamber without breaking main-chamber vacuum.
- Increases through-put of the system for maximum film growth.
- Eliminates the need to remove any flanges or flange-mounted accessories for access to chamber.

High-pressure RHEED system :

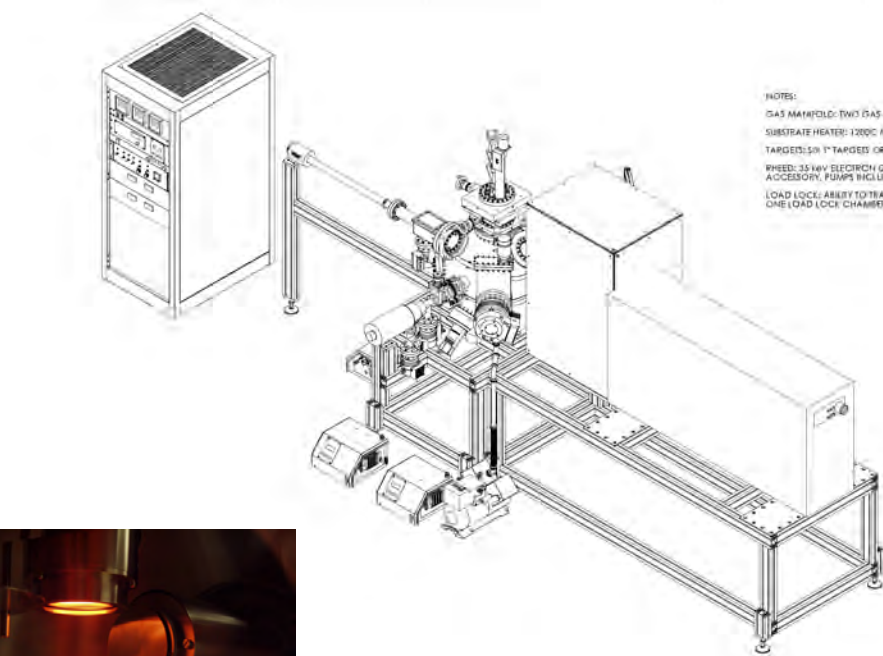
- Differentially pumped system with capability to operate at 1 Torr.
- In-situ beam bending and rocking via electric optics for controlling alignment of RHEED beam.
- 35 keV electron gun.
- Camera and camera mount.
- Data acquisition software: capture images, track intensity of RHEED spots.
- Remote control box for focusing and positioning with 10m cable.



UHV LASER MBE



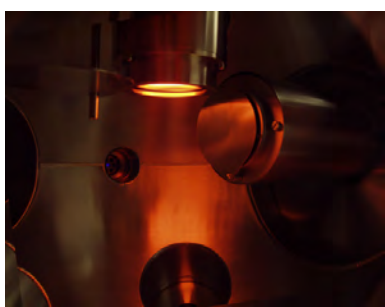
SYSTEM ASSEMBLY
D 2533



NOTES:
GAS MANIPULO: TWO GAS APC'S WITH CONTROLLER
SUBSTRATE HEATER: 1200C MAX TEMPERATURE ON 2" DIAMETER
TARGETS: 50 1" TARGETS OR THREE 2" TARGETS, MANUAL TARGET SWITCH
RHEO: 35 kV ELECTRON GUN WITH RHEO SCREEN AND HIGH-PRESSURE ACCESSORY, PUMPS INCLUDED
LOAD LOCK: ABILITY TO TRANSFER BOTH SUBSTRATE AND TARGET USING ONE LOAD LOCK CHAMBER



SYSTEM ASSEMBLY
D 2533



NBMD Substrate Heater at deposition temperature.