

NANO-MASTER Plasma Assisted MOCVD Systems



NANO-MASTER has developed the world's first table top Plasma Assisted Metal Organic Chemical Vapor Deposition (PA-MOCVD) system for GaN, InGaN and AlGaN deposition processes. In this unique system, having a plasma source N_2 is used instead of NH_3 for growing nitrides thus eliminating abatement of NH_3 and lowering H_2 content in the films. Plasma enhancement via RF showerhead plasma source also allows lower deposition temperatures ($600^\circ C$ versus $1100^\circ C$) making it possible to offer this process in a table top system.

Higher throughput for manufacturing can be achieved through clustering.

FEATURES

- Table top system
- 10" SS chamber
- RF plasma source with showerhead gas distribution
- 4" Substrate holder, heated up to $900^\circ C$
- Five bubblers with individual cooling/heating baths
- Heated gas lines
- 250 l/s turbomolecular pumping package
- 5×10^{-7} torr base pressure
- Fully automated PC based, recipe driven
- LabVIEW user interface
- EMO protection and safety interlocks

OPTIONS

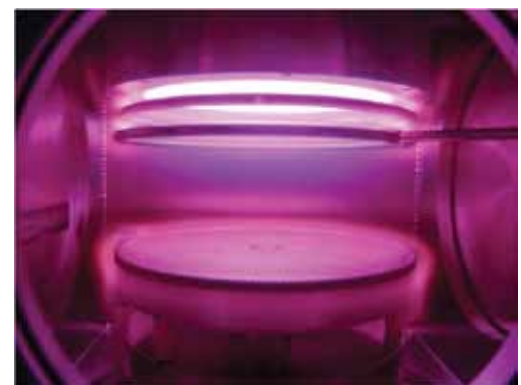
- Stand alone system
- ICP or microwave plasma source
- 14" SS electropolished cubical chamber
- 8" or 12" substrate holder
- Additional bubblers and MFCs
- Auto load/unload
- Cluster compatible

APPLICATIONS

- III-V Semiconductor layers
- Blue LEDs
- Laser Diodes
- InN Nanorods in UV-Vis-IR optoelectronics
- MoS_2 , BN and Graphene in 3D and 2D materials



Planar ICP Source



**RF Plasma Source with
Shower Head Gas Distribution**