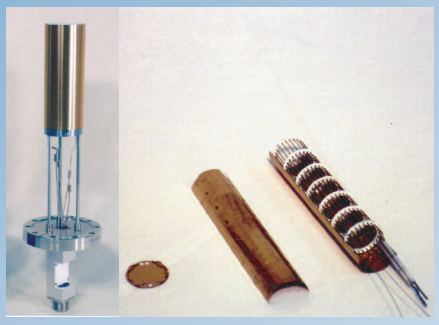
NH_3 MBE For Nitrides

High Throughput NH_3 Injectors

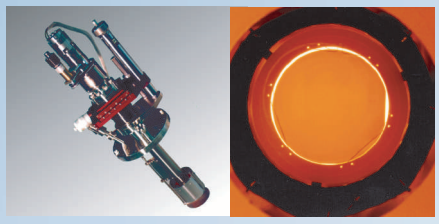
Specially designed injectors are used for generating ammonia flux for advanced nitride research. They may be connected to either a SVTA ultra-purity gas manifold or one supplied by the user. Model #GI-2-2 is our standard ammonia source which can be equipped with up to 3 separate gas nozzles each with independent heater and thermocouple. Excellent nitride properties have been demonstrated using this injector, including very high GaN and HEMT mobility and electron stimulated InGaN emission. Model # GI-RF1, shown on the left, is constructed for high throughput, with a RF heated corrosion shower head plate for pre-cracking the ammonia. Its advanced features include:

- *High pressure operation design*
- *Excellent uniformity over 3" or larger wafer with shower head aperture*
- *Stable temperature cracking up to 1000 ^{O}C for high temperature*
- *High throughput gas pressure*



Effusion Sources Especially Designed For NH_3 Environment

Model #NH- series effusion sources are constructed with proprietary filaments materials and heat shields for extra protection from the corrosive ammonia environment.The crucible size ranges from 2 to 60 cc; and sources up to 40 cc can be mounted on either 2.75" (70mm) or 4.5" (114mm) flanges. Special cold lip Al-cell is extremely durable in NH_3, and hot lip Ga- and In-sources are designed to eliminate undesirable nitride condensation on the crucible lip.



Substrate Heaters For High NH_3 Pressures

Model #NH-series substrate heaters use a proprietary heating filament material which has shown to withstand NH_3 pressures up to several torr and temperature up to 1000 ^{O}C. The heat shields and electrical contacts are similarly treated for high pressure, high temperature operation. Uniformity is guaranteed ± 1% over 4" (100mm).

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