

Hot Wire CVD (HWCVD)

Hot Wire Chemical Vapor Deposition (HWCVD) is a deposition technique that involves thermal decomposition of precursor gases at the surface of resistively heated filament (usually Tungsten) to form radicals. These radicals form other species and get adsorbed on the heated substrate. The advantage of this process is the low temperature of the substrate enabling CVD deposition on polymers etc.

Make and Model: The system was designed and assembled at IIT Bombay

Process Capabilities:

- **Substrate Size:** 2 Inches, small pieces of wafer-Si and glass.
- **Type of depositions:** intrinsic polysilicon, Boron doped polysilicon, silicon nitride.
- **Substrate Temperature:** Room temperature to 800°C.
- **Filament Temperature:** Up to 2000 °C.
- **Process Gases used:** Silane (SiH₄), Ammonia (NH₃), Hydrogen (H₂), Diborane (B₂H₆), Nitrogen (N₂).
- **Chamber Base Pressure:** Up to 10e-7 mbar.
- **History of the substrate:** Silicon wafers, Glass substrate, wafers coated with SU8, oxide deposited wafers.

