GEMaC
Groupe d'Étude de la Matière Condensée

ALD FOR OXIDES

Growth reactor Atomic Layer Deposition (ALD) and CVD for functional oxides (Annealsys MC-050 DLI-CVD/ALD)

GEMaC laboratory develops an ALD growth reactor with liquid injection for the growth 2" of the functional oxide thin films.

The oxides currently under consideration are the references:

- SrTiO3 as a perovskite substrate oxide
- BiFeO3 as a multiferroïc film

for growth on silicium, germanium

Technical specifications

MC-050:

- Miltiprocess capability: DLI-CVD, DLI-ALD, MO-CVD, RTP and RT-CVD
- Oxidants: H2O / O3 & (O2) CVD
- Surface treatment: H2 line
- Direct injection liquid (up to 6 DLI vaporizers):

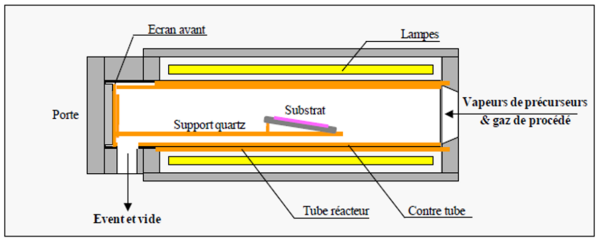
- use of **diluted** chemical precursors (liquid or solid)
- use of precursors with **low vapor pressure** (solid)
- flash atomization & vaporization (a few ms)
- sources at room temperature

Process chamber (cold wall reactor):
- Rapid Thermal Annealing (RTA) up to 1100°C
- Infrared halogen lamp heating
- Atmosphere to 1e-3 mbar

This equipment was subsidized via « AXION » (Flagship LabEx NanoSaclay IDEX ParisSaclay) and « OGRAAL » (DIM Oxymore – région IdF) projects



Annealsys MC-050
DLI-CVD/ALD



Schematic representation of the reactor