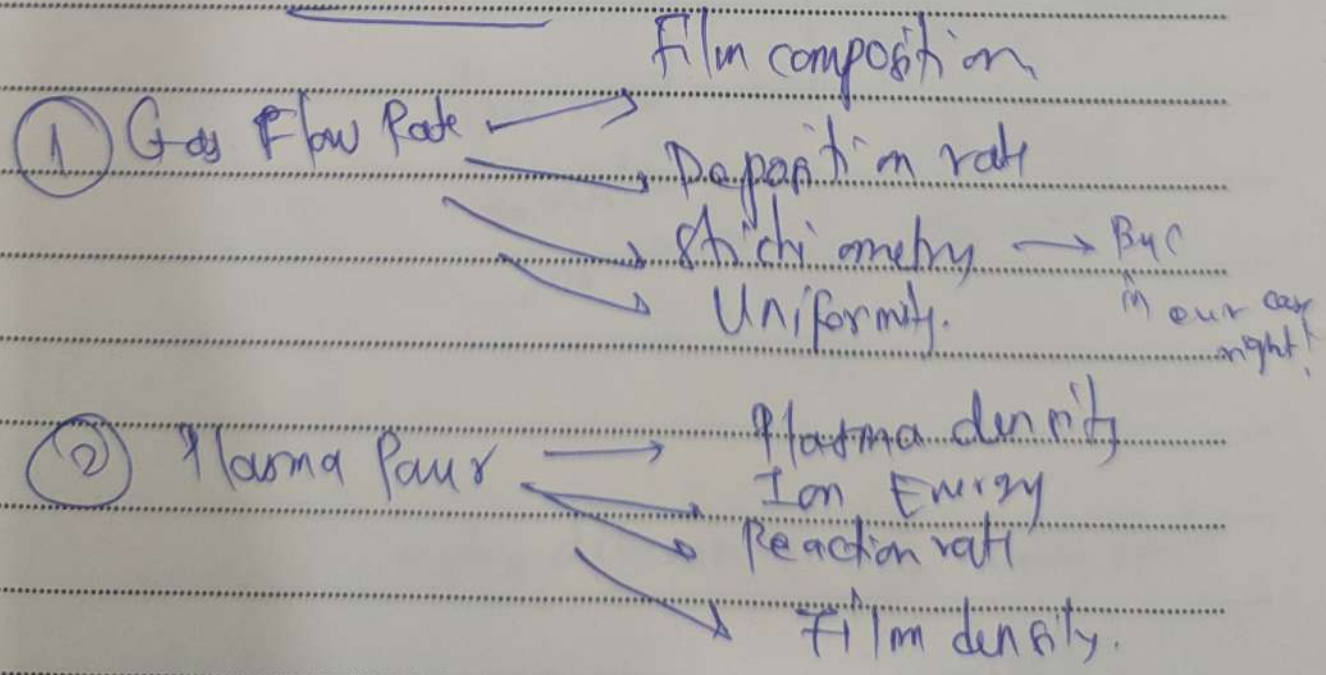


- PC VD
- * Base Pressure 10^{-2} mbar
↓ multikel
 5×10^{-2} mbar
 - * Operating Pressure
 - * Gas Flow rate (Ar, O₂) Has to be controlled
 - * Plasma Power (RF Power, microwave Power, etc)
 - * Substrate Temp (500°C)
 - * DC Bias (self biased)
↪ to attract Fe

What controls what?



③ Chamber Pressure → mean free path of particles
→ collision frequency
→ Plasma Uniformity
→ Film microstructure

④ substrate temp → adhesion
→ impurity removal
→ Film crystallinity
→ Film stress

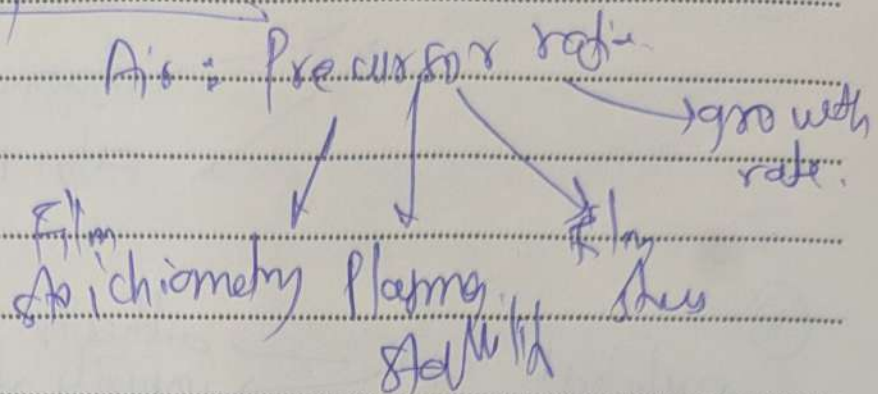
⑤ DC Bias → Adhesion
→ Film density
→ Surface roughness

theoretical
OES → optical emission spectra
for Argon.
What it gives.
char. peak in
visible, IR &
UV region.

⑥ Backler temp → vapour pressure
→ precursor concentration
→ Deposition rate.

Gas Composition ratio

Air : Precursor ratio



All these parameters control:-

- ① Film thickness
- ② Film composition
- ③ Film density
- ④ Surface roughness
- ⑤ Electrical / optical properties
- ⑥ Mechanical stress

Writing parameters again:-

plasma power, Gas Flow Rate, chamber

pressure, substrate temp, substrate bias,

precursor delivery conditions

change