

# PIPSII : General prerequisite



General prerequisite : Please describe your sample, the more information you provide the greater the chance of success!!

- Composition, structure type, strained or not,... SEM or optical image recommended

### **For 3 mm diameter samples**

- Method used for “dimpling” or pre thinning the sample (mechanical, electrochemical). For dimpling ,precise the last polishing step). Ion thinning doesn't remove macroscopic scratches !
- Required thickness :
  - o  $e < 70\mu\text{m}$  on disk side ( $50\mu\text{m}$  recommended) : this avoids shadowing effect!,
  - o in the dimpled area :  $e < 20\mu\text{m}$  : this limits the thinning duration. thickness must be minimized for each sample so that no residual straining induced by mechanical pre thinning during dimpling will be present in the transparent part of the lamella
  - o final mechanical thinning : equivalent to Alumina  $0.5\mu\text{m}$  (removing all macroscopic scratches)

### **Post FIB thinning and cleaning:**

- Lamella must be ideally on the side of finger (Mo grid recommended to be easier handled)
- Many lamellae can be on the same grid (I don't guarantee to have the time for all samples!)
- Ga or Xe FIB preparation (gives last step used in FIB) : no need to go to low kV cleaning in the FIB, stopping the thinning at 30kV with 150nm/200nm is perfect.
- Lamella should be as parallel as possible. At least no wall at the bottom of the lamella (mainly if the area of interest is below the upper protective Pt deposit) : this will prevent shadowing effects during clearing
- SEM 2nd image of the lamella taken at 5kV in FIB (+ ideally 3kV) : this gives an estimation of residual thickness of the lamella