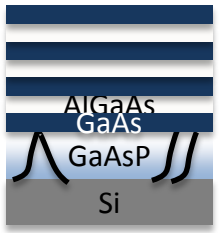
AlGaP coatings plans: growth

Structure	Purpose	Characterization
 AlGaP/GaP mirrors on Si	Study interface effects: vary # of mirror pairs	• Mechanical loss (disk, cantilever) • RT and low T absorption • XRD, TEM, AFM
 AlGaP on Si	Study bulk AlGaP properties	• Mechanical loss (cantilever) • XRD, TEM, AFM, nanoindentation
 GaP on Si	• Study bulk GaP properties • Control defect annihilation	• Mechanical loss (cantilever) • RT and low T absorption • XRD, TEM, AFM, nanoindentation
 Nucleation layer (10 ML) on Si	Reduce atomic-scale defect formation	• AFM, TEM (EELS, HAADF), RDS
 AlGaAs/GaAs on GaAsP on Si	Study effect of dislocations on mech loss and absorption	• Mechanical loss • Absorption • XRD, TEM

Crystalline coating loss measurements at Glasgow

- Glasgow measurements of initial MBE GaP/AlGaP coating on going
  - Collaboration with Stanford ongoing – hopefully a second MBE GaP/AlGaP coating for further studies of this material
  - GaP single layer coatings on silicon cantilevers to be made by Kelvin Nanotechology (KNT) and measured at Glasgow
  - Study multilayer physics from single layer measurements
- Silicon disk to be sent to Garrett Cole to have AlGaAs coating transferred on to it
  - Disk will be measured at Glasgow throughout the temperature range 12-300K