



PH351 Aug 3:0

Crystal Growth, thin films and Characterisation

Instructor

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Teaching Assistant

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Department: Physics

Course Time: Wed, Friday 2.30-4.00 pm

Lecture venue: Lecture Hall 2 Physics

Detailed Course Page:

Announcements

Brief description of the course

Undergraduates (final year), master's, and graduate students can take this course

Prerequisites

None

Syllabus

Basic concepts and experimental methods of crystal growth: nucleation phenomena, mechanisms of growth, dislocations and crystal growth, crystal dissolutions, phase equilibria, phase diagrams and material preparation, growth from liquid-solid equilibria, vapour- solid equilibria, mono-component and multi-component techniques. Thin film growth and characterization: concepts of ultra high vacuum, nucleation and growth mechanisms, deposition techniques such as sputtering, evaporation, LPE, MOCVD, MBE, PLD, etc., thickness measurements and characterization such as RHEED, LEED, thin-film XRD, etc.

Course outcomes

The student will learn about the crystal growth mechanisms and techniques. Various thin films deposition techniques and thin film characterisation techniques are also covered in the course.

Grading policy

40% mid term and 60% final

Assignments

Resources