

Survey of Materials

Team project 2, due dates are set in Course schedule and Canvas LMS

Topic: Structural types

Analyze a structural type or a class of structural types: definition, structure, bonding, structure-property relationships, structural trends, related structural types, what kind of materials prefer this structure and why these materials prefer this structure etc. Here is an exemplary list of choices:

- Close-packed structures (metals)
- Close-packed structures (alloys)
- Closely copacked compounds (ionic crystals)
- Tetrahedrally coordinated lattices (Si etc.)
- Inorganic sheets and layered crystals (graphene etc.)
- Inorganic polymers (Se etc.)
- Crystals of diatomic molecules
- High-pressure polymorphs of Si
- High-pressure polymorphs of P
- Perovskites (deformations)
- As/GeTe structural type (deformations)
- Rutile structure
- Chalcopyrite structure

Reminder: This is a scientific project whose more or less complete solution has a complexity scale of a peer-reviewed publication. That is why a precise exhaustive solution is not required. But try to do your best, spending a reasonable amount of time (about 2 hours per week per team member). It is expected that you will take TA's advisory on team-projects. Prepare 10 min oral presentation and be ready for additional 10 min of discussion. Very short written report is also required and should contain the information on participation of each team member. Assessed are science, technical level, presentation (both oral and slides), discussion, and written report.