Workplan

Objectives of Internship:

The investigation focuses on TiAl based structural metal alloys, which have multi-phase internal microstructures, such as colonies, domains and lamellae. Their finite element modeling (FEM) and pre-processing are crucial to perform crystal plasticity finite element analysis for a Representative Volume Element (RVE) under periodic boundary conditions. The candidate for internship is required to do Python scripting for the ABAQUS input, such as generation of the FE mesh for crystals with various orientations, and specifying the nonlinear and linear multipoint constraints which correspond to periodic boundary conditions.

Primary Work Duties:

1. Object Generation with Scripting
   1. Allows for precise geometric definition thereby reducing uncertainty in object simulations
   2. Extending Object Generation to sufficiently large spaces
2. Mesh Generation for Object FE Simulation through scripting

Intended Learning Outcomes

1. Workflow in a research environment
2. Technical Report Handling and Writing