# Project 14: Measurement and Modeling of Anisotropy in Ti-6Al-4V Forgings Dashboard

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**Project Duration**
PhD: January 2015 to December 2019

Problem: Preferred crystal orientation (texture) in forgings of Ti-6Al-4V limits the inspectability and predictability of mechanical properties in forgings.

Objectives: Assessing capability of current models to predict localized texture, extending them to address limitations, and applying the code to a complex forging

Benefit: Validated microstructural models to predict texture that can be integrated into an industrially-relevant software package (DEFORM®)

Recent Progress

- Literature review emphasizing microstructural evolution during Ti-6Al-4V processing
- Identified limitations of current transformation texture model
- Identified microstructural (variant selection) models to assess impact on texture prediction

| Metrics | | |
|---|---|---|
| **Description** | **% Complete** | **Status** |
| 1. Survey of current knowledge | 75% | ● |
| 2. Baseline deformation texture simulation (upset of cylindrical sample) | 85% | ● |
| 3. Assessment of transformation texture limitations | 30% | ● |
| 4. Extension of current models to more accurately predict texture | 0% | ● |
| 5. Application of extended models to industrial forging | 0% | ● |