

# 8 Project 29 - Identification of Deformation Mechanisms of Thermally Stable Cast Al-Cu Alloys via Neutron Diffraction and Creep Testing

**Student:** Brian Milligan

**Faculty:** Amy Clarke

**Industrial Partners:** ORNL (Amit Shyam)

**Project Duration:** 4 years (Nov. 2017 start)

## **Achievement**

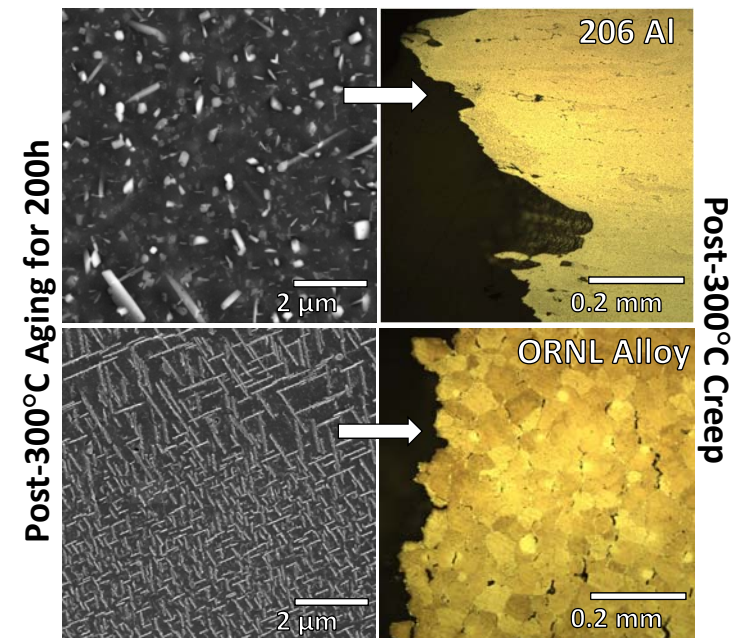
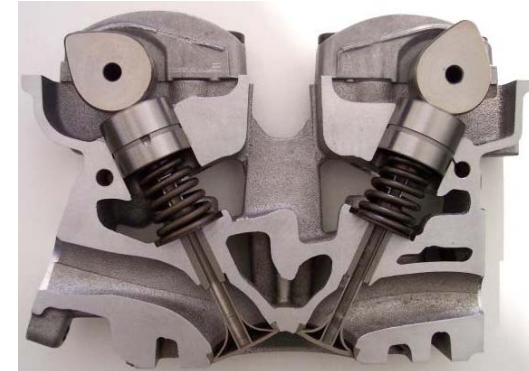
- Modeling of creep behavior in commercial and experimental Al-Cu alloys at high homologous temperature

## **Significance and Impact**

- Thermally stable Al-Cu cylinder head alloys developed at ORNL outperform commercial alloys during creep loading, allowing for higher engine operating temperatures

## **Research Details**

- Performed creep experiments and developed new low-stress microstructure-based creep model using results



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