

12 Project 34 - In-situ Observation of Phase and Texture Evolution Preceding Abnormal Grain Growth in Ni-based Aerospace Alloys

Graduate Student – Byron McArthur (CSM)

Faculty/Advisors – A. Clarke (CSM)

Industrial Mentors – E. Payton, A. Pilchak (AFRL), K. Severs (ATI)

Program Goal

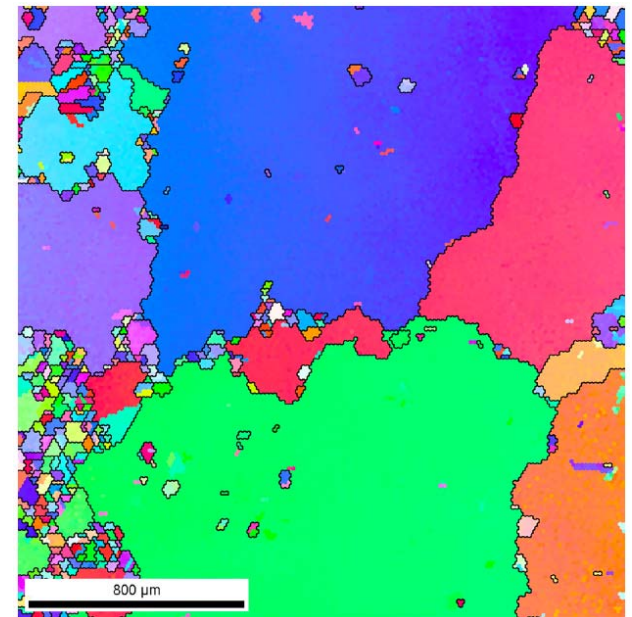
Develop a fundamental understanding of the microscopic origins of abnormal grain growth in Ni-base engineering alloys

Approach

Utilize the increased spatiotemporal resolution available with high energy diffraction microscopy (HEDM) to characterize evolution of microstructures in these alloys

Benefits

Identify the micro-mechanisms that cause abnormal grain growth during super-solvus heat treatment following thermomechanical processing



Abnormal grain growth observed in Rene 104

Project Duration

Nov. 2017 to Dec. 2020



IOWA STATE
UNIVERSITY



CANFSA
Center for
ADVANCED NONFERROUS STRUCTURAL ALLOYS

**Center Proprietary – Terms of CANFSA
Membership Agreement Apply**