----- GENERAL INFORMATION -----

DATA TITLE: Texture data of Additively Manufactured Ti-6Al-4V (Different Scanning Strategies)
PROJECT TITLE: Rationalization of Interphase Instabilities During Thermo-Mechanical Gyrations Typical to Metal Additive Manufacturing (AM)
DATA ABSTRACT: Electron Backscatter Diffraction data collected from 3 electron-beam Ti-6-Al-4V AM samples: raster (L), Dehoff (D) and random (R), at three different heights (bottom, middle and top) of the builds.

AUTHORS:

Author: Peter C. Collins
ORCID: 0000-0002-3441-2981
Institution: Iowa State University
Email: pcollins@iastate.edu

Author: Maria J. Quintana
ORCID: 0000-0002-1926-9910
Institution: Iowa State University
Email: mariaqh@iastate.edu

Author: Matthew J. Kenney
ORCID: 0000-0002-3237-5988
Institution: Iowa State University
Email: mjkenney@iastate.edu

Author: Priyanka Agrawal
ORCID: 0000-0001-9894-9625
Institution: University of North Texas
(work conducted while at Iowa State University)
Email: priyanka.agrawal@unt.edu

Corresponding author: Peter C. Collins

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COLLECTION INFORMATION:

Time period(s): September 2018 – January 2019

Location(s): Sensitive Instruments Facility (SIF), Ames Laboratory, and Iowa State University

----- FILE DIRECTORY -----

----- FILE LIST-----

- D5-bottom-XZ.ctf – contains raw data of an EBSD map collected from the Dehoff sample in the XZ plane, bottom of the sample.
- D5-middle-XZ.ctf – contains raw data of an EBSD map collected from the Dehoff sample in the XZ plane, middle of the sample.
- D5-top-XZ.ctf – contains raw data of an EBSD map collected from the Dehoff sample in the XZ plane, top of the sample.

- L5-bottom-XZ.ctf – contains raw data of an EBSD map collected from the Raster sample in the XZ plane, bottom of the sample.
- L5-middle-XZ.ctf – contains raw data of an EBSD map collected from the Raster sample in the XZ plane, middle of the sample.
- L5-top-XZ.ctf – contains raw data of an EBSD map collected from the Raster sample in the XZ plane, top of the sample.

- R5-bottom-XZ.ctf – contains raw data of an EBSD map collected from the Random sample in the XZ plane, bottom of the sample.
- R5-middle-XZ.ctf – contains raw data of an EBSD map collected from the Random sample in the XZ plane, middle of the sample.
- R5-top-XZ.ctf – contains raw data of an EBSD map collected from the Random sample in the XZ plane, top of the sample.

----- METHODS AND MATERIALS -----

----- DATA COLLECTION METHODS -----

Each electron backscatter diffraction (EBSD) map captured an area of 350 μm × 350 μm, and each map was collected using an Oxford EBSD detector on a FEI Teneo LoVac SEM with 0.5 μm step size and 8 × 8 binning. Ti-alpha and Ti-beta phases are considered.

----- DATA PROCESSING METHODS -----

This is raw data obtained from the collection software (AZtec).

------- SOFTWARE -------
AZtec HKL from Oxford Instruments and MATLAB.
Name: MATLAB
Version: 2015+
System Requirements: Windows 64-bit, Mac 64-bit or Linux 64-bit
URL: https://www.mathworks.com/products/matlab.html
Developer: MathWorks
Additional Notes: MATLAB is one of the options of software that can be used to analyze the data. The CFT files are tabular data using the TAB character as a delimiter.

------- EQUIPMENT -------
Manufacturer: FEI
Model: FEI Teneo LoVac
Additional Notes: Oxford backscattered electron detectors

------- LICENSING -------