

Materials Department, Bldg. 503, Rm. 2519  
University of California, Santa Barbara, CA 93106

E-mail: mlaflata@umail.ucsb.edu  
[Pollock Research Group](#)

## Education

Ph.D. Materials Engineering  
University of California, Santa Barbara  
Santa Barbara, CA, Expected graduation: 2018

B.S.E. Materials Science and Engineering  
University of Michigan,  
Ann Arbor, MI, Graduation date: May 2013

## Employment and Positions

**Sep 2013–Present** Materials Department, University of California, Santa Barbara

Position: Graduate Student Researcher, Ph.D. Candidate

Advisor: Prof. Tresa M. Pollock

- Investigating the influence of various bond coatings during creep-fatigue testing
- Characterization of bond coating microstructure and oxidation behavior
- Evaluating the magnitude of growth stresses in alumina scales grown on bond coatings

**June 2015–Sep 2015** GE Global Research, Niskayuna, NY

Position: Intern - Manufacturing and Materials Technology - High Temperature Alloys and Processing Laboratory

- Evaluated and characterized the cyclic oxidation properties of Ni-base superalloys

**Jan 2013–May 2013, Sep 2011–Apr 2012** Materials Science and Engineering Department

University of Michigan, Ann Arbor, MI

Position: Undergraduate Research Assistant

Advisor: Prof. John E. Allison

- Studied the grain structure of 6061 aluminum billets for extrusions
- Quantified the microstructural evolution of a super vacuum die cast aluminum alloy with respect to varying solution heat treatment times
- Analyzed phase fractions and sizes using optical microscopy and image processing techniques

**May 2012–Aug 2012** Alcoa Howmet Whitehall Castings, Whitehall, MI

Position: Process Engineering Intern

- Analyzed casting/grain defects to determine the root cause
- Tested and implemented process changes to reduce scrap and/or improve ease of manufacturing
- Worked with production operators and customers to improve processes

**May 2011–Aug 2011** Alcoa Howmet Research Center, Whitehall, MI

Position: Engineering Services Intern

- Worked closely with Alcoa Howmets testing and laboratory facilities
- Analyzed casting defects through metallographic examination and anomaly characterization reports
- Completed projects and testing pertaining to issues observed at Howmet Casting plants

**Sept 2010–Dec 2010** Materials Science and Engineering Department

University of Michigan, Ann Arbor, MI

Position: Undergraduate Research Assistant

Advisor: Prof. Joerg Lahann, Dr. Tae-Hong Park

- Prepared polymeric solutions for the electrohydrodynamic co-jetting of biphasic particles

## Skills

*Characterization:* optical microscopy, SEM (EDS and EBSD), fluorescence spectroscopy, profilometry, metallographic sample preparation

*Testing & Analysis:* high temperature low cycle fatigue, heat treatment

*Programming and software:* Matlab, Mathematica, ImageJ, Microsoft Office, LaTeX

## Awards and Recognition

**2016** International Symposium on Superalloys Scholarship

**2014** Best Cooperative Presentation Award, ACEEES 2014

**2013** Distinguished Undergraduate Student Achievement Award, Materials Science and Engineering Department, University of Michigan

**2012** TMS Light Metals Division Scholarship

**2011 & 2012** Hosford Endowed Scholarship

**2011** Investment Casting Institute Scholarship

**2010** Margaret S. Huntington Scholarship

**2009 & 2010** Johnson Controls Foundation Scholarship

## Leadership and Outreach

**2016** Organizer, UCSB Material Research Lab's *Our Material World*

- Designed the program and brought together a set of diverse speakers for an outreach event aimed at presenting materials science to the local community

**2012-2013** K-12 Outreach Chair, *Tau Beta Pi*

- Coordinated a team of 20 volunteers for a three module STEM program (MindSET) involving 70 local elementary students
- Organized the development of an evening engineering program for elementary students and parents
- Communicated with teachers, principals, volunteers, and the university to plan and organize events

## Publications

Submitted Manuscripts (available upon request)

2. **M.A. Lafata**, L.H. Rettberg, M.Y. He, and T.M. Pollock, "Oxidation-Assisted Crack Growth in Single Crystal Superalloys during Fatigue with Compressive Holds" submitted May 2017.

Refereed Conference Papers

1. **M.A. Lafata**, L.H. Rettberg, C. Mercer, and T.M. Pollock, "Sustained Peak Low-Cycle Fatigue in Single Crystals with Equilibrium  $\gamma - \gamma'$  Coatings," *Superalloys 2016*, 405-413 (2016). [[doi](#)]

## Oral Presentations

5. M.A. Lafata, L.H. Rettberg, M.Y. He, and T.M. Pollock, *The Influence of Bond Coats on Crack Progression during Sustained Peak Low-Cycle Fatigue*, TMS 2017, San Diego, CA (2017).
4. M.A. Lafata, L.H. Rettberg, C. Mercer, T.M. Pollock, *Sustained Peak Low-Cycle Fatigue in Single Crystals with Equilibrium  $\gamma - \gamma'$  Coatings*, Superalloys 2016, Seven Springs, PA (2016)
3. M.A. Lafata and T.M. Pollock. *The Role of Bond Coatings in the Damage Development Due to Sustained Peak Low-Cycle Fatigue*. MS&T 2015, Columbus, OH (2015).
2. M.A. Lafata, L.H. Rettberg, and T.M. Pollock. *The Role of Bond Coatings in Sustained Peak Low-Cycle Fatigue*. ACEEES Forum 2014, Perth, WA, Australia (2014).
1. M.A. Lafata, L.H. Rettberg, and T.M. Pollock. *The Role of Bond Coatings in Sustained Peak Low-Cycle Fatigue*. GOALI-SYDES Annual Meeting. GE Global Research, Niskayuna, NY (2014).