

# RODRIGO ORTA

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PhD candidate in materials engineering performing research on ceramic materials for high temperature aerospace applications. Experienced (+5 yrs.) mechanical design engineer for product development and cost-savings strategies. Implemented new materials, manufacturing technologies and redesigned of high-volume components to reduce production cost. Strong coaching skills to for students, professionals, and general audiences.

## EDUCATION

SEPTEMBER 2019 – JULY 2023

**PhD Researcher, Materials Engineering, Purdue University (USA)**

OCTOBER 2012 - OCTOBER 2013

**MSc Gas Turbine Engineering, Cranfield University (UK)**

AUGUST 2006 - DECEMBER 2010

**BSc in Mechanical Engineering, ITESO University (MX)**

## EXPERIENCE

2022

**AR PRODUCT INTEGRATION AND DEVELOPMENT INTERN , META**

- PhD intern at Meta Reality Labs
- Supported the product integration team with RCA for different operations in the integration of optical devices

2019 – JULY 2023

**PHD RESEARCHER – MATERIALS ENGINEERING, PURDUE UNIVERSITY**

- Conduct research on high temperature ceramics, processing techniques, mechanical and physical properties characterization
- Developed a high temperature silicon carbide ceramic heat exchanger for gas turbines applications
- Synthesize ceramic/polymer blends to manufacture components at low temperatures.

2017 - 2020

**MECHANICAL ENGINEERING PROGRAM MANAGER, TEC DE MONTERREY**

- Established a new strategy to attract mechanical engineering students which increased the enrollment by 50%
- Provided academic and personal mentorship for the success of 250 mechanical engineering students
- Managed the academic programming of courses for students that reduced the number of repeating courses in the academic year saving the department  $\approx$  \$50K/year

2014 – 2017

**MECHANICAL DESIGN ENGINEER, GENERAL ELECTRIC - WAUKESHA ENGINES**

- Implemented engineering cost savings based on design engineering and new manufacturing technologies to reduce cost on high volume components (estimated savings  $\approx$  \$500K/year)
- Managed and executed engineering change order on core products to be updated for manufacturing
- Developed 3D mechanical engineering models and drawings for new products and improved mechanical components
- Collaborated with global teams to negotiate with customers and suppliers to meet engine and manufacturing requirements.

## TECHNICAL SKILLS

Characterization	Tensile testing, SEM, XRD, EDS-X, Optical Microscopy, 4-Point Bending, High-Temperature Testing, Charpy-Test, Rheology.
Processing	Injection/Compression Molding, Extrusion, Mold and Tooling Design & Fabrication, Lamination, Plastic Products Design, Slip Casting and Ceramic Suspensions, Ceramic Joining and Sintering
CAD and Software	Inventor, Solidwoks, PRO-E/CREO, CATIA, ANSYS Workbench, Origin and Image J
Languages	Native Spanish, Full professional proficiency English

## LEADERSHIP ACTIVITIES

### **NEW TECHNOLOGIES INTRODUCTION LEADER, GENERAL ELECTRIC**

Coordinated the introduction of new manufacturing technologies for cost-savings initiatives

### **CERAMIC POWDER PROCESSING EQUIPMENT MANAGER, PURDUE UNIVERSITY**

Created a training program for new users in ceramic processing equipment such as banbury mixer, high-speed shear mixer, surface grinder, warm press and sintering furnace.

### **GRADUATE RESEARCH MENTOR, PURDUE UNIVERSITY**

Supervised multiple undergraduate students on ceramic research projects and trained them in laboratory techniques.

### **TECHNICAL ADVISOR FOR BAJA-SAE STUDENT COMPETITION, TEC DE MONTERREY**

Created the first BAJA-Team to participate on an internationally SAE student competition  
Trained and developed a program for students to develop technical and soft skills on engineering

### **ENGINEERING LECTURER - PURDUE UNIVERSITY/ TEC DE MONTERREY**

Lectured students on engineering courses such as: Materials Engineering Fundamentals, Computer Aided-Design, Statics, Mechanics of Materials, Materials Engineering Fundamentals and Design of Machines

## PRESENTATIONS AND PUBLICATIONS

### **INTERNATIONAL CONFERENCE ON ADVANCED CERAMICS & COMPOSITES (2023) – DAYTONA, FL**

Joining of SiC components by pressureless reaction bonding using SiC loaded suspensions  
Oral presentation at the Joining, Integration, Machining, Repair, and Refurbishment Technologies symposium

### **INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER (2022)**

Design and modeling of a multiscale porous ceramic heat exchanger for high temperature applications with ultrahigh power density, Volume 194, 2022, ISSN 0017-9310.

### **ULTRA-HIGH TEMPERATURE CERAMICS: MATERIALS FOR EXTREME ENVIRONMENT APPLICATIONS (2022) – SNOWBIRD, UT**

Best Poster Award - Multiscale porous high-temperature heat exchanger using ceramic co-extrusion

### **INTERNATIONAL CONFERENCE ON ADVANCED CERAMICS & COMPOSITES (2022) – DAYTONA, FL**

Green State Processability and Final Mechanical Properties of SiC Prepared by Co-Extrusion.  
Oral presentation at the international Materials Science & Technology Technical Meeting and Exhibition.

### **MATERIALS SCIENCE & TECHNOLOGY (MS&T) 2021 – COLUMBUS, OH**

Pressureless Sintered SiC Formed via Thermoplastic Fugitive Binders for High-temperature Applications.  
Oral presentation at the international Materials Science & Technology Technical Meeting and Exhibition.

### **INFORMA CONNECT AUSTRALIA**

Contributed with technical advice for the development of article: "Technological developments for the gas turbine industry Which are the most promising? [Link](#)."