**ROWDY RAIDER**

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**OBJECTIVE:**

 To obtain a full-time, entry level position in Material Science Engineering

**EDUCATION:**

**Master of Science in Material Science Engineering**  May 2021

Wright State University, GPA: 4.0/4.0 Dayton, OH

Thesis: Functionalization of Ceramic Matrix Composites by an Integrated Metallic Substructure

**Bachelor of Science in Material Science Engineering**  May 2020

University of Dayton, GPA: 3.8/4.0 Dayton, OH

**TECHNICAL SKILLS:**

 Microsoft Office Scanning Electron Microscopy (SEM)

 SOLIDWORKS X-Ray Diffraction (XRD)

 MATLAB Gel Permeation Chromatography (GPC)

Rheometry Differential Scanning Calorimetry (DSC)

Thermogravimetric Analysis (TGA) Optical Microscopy

Raman Spectroscopy Ceramic Matrix Composite (CMC) Layup

Ceramic and Metal Sample Preparation Nano Indentation

**RELEVANT EXPERIENCE:**

**Graduate Research,** Dept of Mechanical and Materials Engineering, WSU Fall 2019 - Present

* The functionalization of ceramic matrix composites by an integrated metallic substructure
* Fabrication of ceramic matrix composites including re-infiltration and pyrolysis
* Integration of refractory metallic substrates for the functionalization of ceramic matrix composites
* Microscopic characterization of diffusion zones including SEM, XRD, and Raman Spectroscopy
* Determination of diffusion parameters and diffusion kinetics through scale thickness, the Arrhenius equation, and Deal-Grove kinetics
* Sponsored by the ceramic matrix composites group at the Air Force Research Laboratory, WPAFB

**Student Research Assistant,** SOCHE, Air Force Research Laboratory, WPAFB Spring 2017 – Present

* Ceramic matrix composite research group in the Materials and Manufacturing division
* Obtained security clearance
* Testing of various pre-ceramic polymers in glovebox vacuums and vacuum ovens for further use in ceramic matrix composites
* Analysis of polymer properties using rheometry, TGA, GPC, and DSC
* Ceramic and fiber sample preparation, polishing followed with SEM and optical microscopy
* Ceramic matrix composite fabrication, re-infiltration cycles, testing, and analysis
* Finding and training new interns

**University Honors Research,** Dept of Mechanical and Materials Engineering, WSU Spring 2020 – Present

* Silicon carbide – tungsten diffusion reactions during the processing of ceramic matrix composites
* Manipulate of original experiment set up to increase the scale of the system for more accurate analysis
* Design of experiment including various methods to derive silicon carbide powder
* Derivation via pre-ceramic polymer pyrolysis and derivation via pre-ceramic polymer and silicon carbide powder slurry mixture
* Characterization of diffusion zones through SEM and XRD
* Sponsored by the ceramic matrix composites group at the Air Force Research Laboratory, WPAFB

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**Senior Design Project,** Dept of Mechanical and Materials Engineering, WSU Fall 2019 – Spring 2020

* Impact resistance comparison of additively manufactured polyetherketoneketone (PEKK) using fused deposition modeling and selective laser sintering
* Design of samples for Charpy testing and three-point bending analysis
* Coordination with the manufacturing and design team at the University of Dayton Research Institute
* Sponsored by the University of Dayton Research Institute, the Air Force Life Cycle Management Center, and the Air Force Advanced Training & Technology Center

**HONORS AND AWARDS**

Dean’s List, Wright State University

Tau Beta Pi Engineering Honor Society, Wright State University

Order of Omega, Wright State University

Magna Cum Laude, Wright State University

University Honors, Wright State University

**EXTRACURRICULAR ACTIVITIES:**

* Teaching Assistant, College of Engineering & Computer Science, WSU Fall 2020 - Present
* Phi Sigma Rho Spring 2017 – Spring 2020
* Volunteer, Leukemia and Lymphoma Society 2008 - Present

**PRESENTATIONS AND PUBLICATIONS:**

* Apostolov, Z. D., Raider, E. P., Key, T. S., & Cinibulk, M. K. (2020). Effects of Low-Temperaryre Treatment on the Properties of Commercial Preceramic Polymers. Journal of the European Ceramic Society, 40(8), 2887-2895. doi: 10.1016/j.jeurceramsoc.2020.02.030.
* Raider, E., Apostolov, Z., Gockel, J., & Cinibulk, M. (2020). Silicon Carbide – Tungsten Diffusion Reactions During Processing of Ceramic Matrix Composites.
* Raider, E., Fagan, E., Marshall, G., Hill, A., Kascandy, T., & Mian, A. (2020). Impact Resistance Comparions of Additively Manufactured Polyetherketoneketone (PEKK) Using Fused Deposition Modeling and Selective Laser Sintering.