

# Abdullah Al Saad

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## **Research Interest**

Ceramics, Structural Materials, Materials Characterization and Computational Materials

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## **Education**

*Purdue University, West Lafayette, Indiana*

Phd (candidate) in Materials Engineering || Anticipated graduation: May 2024

Advisor: Dr. Rodney Trice and Dr. Carlos Martinez

*The University of Toledo, Toledo, Ohio || August, 2020*

MS in Mechanical Engineering, CGPA: 3.71/4.00

Advisor: Dr. Sarit B Bhaduri

*Bangladesh University of Engineering & Technology (BUET),*

Dhaka, Bangladesh || September, 2017

BS in Naval Architecture & Marine Engineering, CGPA: 3.48/4.00

Advisor: Professor Khabirul Haque Chowdhury, CEng

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## **PhD Dissertation:** Design and Evaluation of Rare-Earth Co-Stabilized Cubic Zirconia For Hypersonic Flight

In this project, I am working on the preparation and investigation of co-stabilized cubic zirconia solid solutions using various rare-earth ions to improve the emissivity of this phase for hyper-sonic flight applications. This project is being funded by Office of Naval Research (ONR).

## **MS Thesis:** Ageing Resistant Toughened Zirconia as a Dental Implant Material

The objective of this study is to find an alternative ceramic material that will have similar mechanical properties and lattice structure before and after being exposed to a humid atmosphere and hence not susceptible to ageing.

## **BS Thesis:** Development of Computer Program for Preliminary Design of Inland Oil Tanker

In this project, a C++ program was developed to find out the design parameters for the initial design stage of an inland oil tanker. The outcome of this project improved the efficiency of preliminary design steps by 70 % and automated the whole calculation process.

## **Conference and Symposium**

- Saad, Abdullah Al; Sikder, Prabaha; Ta, Devin D.; Bhaduri, Sarit B. Toughened Zirconia as Dental Implant Material. Poster presented at: Biomaterials Day by Society for Biomaterials at the Case Western Reserve University; 2019 October 26; Cleveland, OH
- Saad, Abdullah Al; Sikder, Prabaha; Ta, Devin D.; Bhaduri, Sarit B. Toughened Zirconia as Dental Implant Material. Presented at: 15<sup>th</sup> Dayton Engineering Sciences Symposium by ASME Dayton at University of Dayton; 2019 October 29; Dayton, OH
- Saad, Abdullah Al; Sikder, Prabaha; Ta, Devin D.; Bhaduri, Sarit B. Toughened Zirconia as Dental Implant Material. Poster presenting at Eaton Experience and Poster Session at Eaton Corporation, North American Headquarters; 2020 February 21; Beachwood, OH

## **Research Experience**

***Graduate Research Assistant***, Triceramics Lab,  
Purdue University, West Lafayette, Indiana

September 2020-Present

*Graduate Assistant*, The Multifunctional Material Lab,  
The University of Toledo, Toledo, Ohio

September 2018- May 2020

### **Industry Experience**

*Mechanical Engineering Intern*, Dana Incorporated, Maumee, Ohio May 2020-August 2020

- Worked in the noise, vibration and harshness (NVH) lab of Dana R&D headquarters.

### **Teaching Experience**

*Graduate Teaching Assistant*, Measurement Lab (MIME 2000-110 enrolment) August 2018- May 2020

& Vibrations Lab (MIME 3360- 50 enrolment) May 2019-August 2019

Department of Mechanical Engineering, The University of Toledo, Toledo, Ohio

- Assisted in preparing the course materials, delivered the class, evaluated the students' performance by grading and administered Blackboard

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### **Technical Expertise**

- Characterization tool: Hitachi S-4800 UHR Scanning Electron Microscope (SEM), Rigaku Ultima III X-ray Diffractometer (XRD), Jobin Yvon Horiba Confocal Raman Spectrometer, Veeco MultiMode AFM, Keyence VHX-600 Digital Microscope
- Sintering equipment: Hot Spot 110 Zircar Sintering Furnace, MMT 3KW Microwave Sintering Furnace
- Polishing tool: AutoMet 300 Pro Grinder-Polisher
- CAD: SolidWorks 2016, AutoCAD 2019, Rhinoceros 2011
- FEA/CFD packages: ANSYS, ABAQUS, COMSOL, SolidWorks simulation
- Programming language: C/C++, Python, Fortran, MATLAB, OCTAVE GNU
- Data Acquisition tool: LabVIEW

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### **Certified Training**

- Standard Training to Operate XRD, SEM, RAMAN, AFM, Optical Microscope, Polisher, 3-D Printer from Center for Materials and Sensor Characterization (CMSC), The University of Toledo
- A Hands-on Introduction to Engineering Simulation (ANSYS) from Cornell University (December 2018)

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### **Professional Affiliation**

- Global Graduate Research Network (GGRN) at American Ceramic Society, ACerS ID: 2002856
- National Society of Professional Engineers - Ohio Chapter, NSPE ID: 300638507
- Society for Biomaterials, Member ID: 1210463

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### **Leadership and Associations**

*Treasurer* | Graduate Student Association, The University of Toledo, Toledo, Ohio

*President* | MIME Graduate Student Association, The University of Toledo, Toledo, Ohio

*Vice President* | Bangladesh Students Association, The University of Toledo, Toledo, Ohio

*Development Intern* | Toledo Imagination Station, Toledo, Ohio

*Layout Associate* | ARC OSCAR Night Planning Committee, American Red Cross, Toledo, Ohio

*Session Chair* | 10<sup>th</sup> Annual Midwest Graduate Research Symposium at The University of Toledo, Toledo, Ohio

*Tutor* | After School All Stars (ASAS) Ohio, Toledo, Ohio