

Birendra Chaudhary

Phone: 662-380-9247

Email: birendrac246@gmail.com

birendra.info

linkedin.com/in/birendrac246

Education

The University of Mississippi – Oxford, MS

Bachelor of Science – Mechanical Engineering

Minor: Mathematics

Graduation: May, 2020

GPA: 3.92

Research Experience

Undergraduate Researcher, Department of Mechanical Engineering, University of Mississippi

Advisor: Damian Stoddard

October 2018 - Present

- Conducted high strain-rate dynamic experiments on wooden and fiber glass composites using Split Hopkinson Pressure Bar (SHPB)
- Interpreted and analyzed data using Microsoft Excel and validated tests recorded via Shimadzu HPV 2 million frames per second high speed camera using MATLAB GUI script and DIC tracking software
- Performed high strain-rate experimentation using SHPB and low velocity test using Low Velocity Impact (LVI) machine on three grades of hygrothermally aged and pure garolites to understand its dynamic characterization

This work resulted in two publications in ASME-ECTC journal. Three other manuscripts are under preparation. This work was funded through US Army Corps of Engineers (ERDC), Sally McDonnell Barksdale Honors College (SMBHC), and Department of Mechanical Engineering at Ole Miss.

Advisor: Dr. Shan Jiang

May 2019 - Present

- Assisted in modeling and simulation of Nano-Particles (NP's) using LAMMPS
- Interpreted and analyzed the results using Microsoft Excel and Ovito for visualization of simulated particles
- Performed compression tests of five crystal Ti-Al core-shell NP's with three different core volume at different strain rates which were heated at two different rates, cooled and equilibrated before simulation to understand its mechanical properties

This work will result in potential manuscript. This work was funded by Department of Mechanical Engineering at Ole Miss. The servers like Catalpa, Maple and Sequoia were made available by Mississippi Center for Supercomputing Research at the University of Mississippi (Olemiss).

Publications

Submitted Manuscripts

1. **Chaudhary, B.**, Ukyam, B., Stoddard, D., "Comparative Analysis and Dynamic Response of Garolites Under Temperature Spectrum Using Low Velocity Impact Test" (*accepted for ASME-ECTC journal*)
2. Turner, Baird, Serafin, Torrado, **Chaudhary**, Hughes, Stoddard, Rajendran, "High Strain Rate Energy Absorption of Dried Distillers Grains and Solubles Using Split Hopkinson Pressure Bar Technique" (*under revision*)
3. Turner, I., Baird, R., Serafin, S., Torrado, J., **Chaudhary, B.**, Hughes, H., Stoddard, D., "High Strain-Rate Sensitivity and Energy Absorption of Duroprotect, A Fiber-Reinforced Ballistics Composite" (*accepted for ASME-ECTC journal*)

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Manuscripts in preparation

1. **Chaudhary, B.**, Baird, R., Serafin, S., Torrado, J., Stoddard, D., "High Strain-Rate Testing of Hygro-Thermally Aged and Standard Garolites using Split Hopkins Pressure Bar"
2. **Chaudhary, B.**, Stoddard, D., "Dynamic Characterization of Hygro-Thermally Aged Garolites Using Low Velocity Impact Test"
3. **Chaudhary, B.**, Jeon, J., Zhang, H., Jiang, S., "Behavior of Ti-Al Core Shell under Compression at different strain-rates"

Presentations

Oral Presentations

1. **Chaudhary, B.**, Ukyam, B., Stoddard, D., "Comparative Analysis and Dynamic Response of Garolites Under Temperature Spectrum Using Low Velocity Impact Test" Early Technical Career Conference 2019

Poster Presentations

1. Turner, Baird, Serafin, Torrado, **Chaudhary**, Hughes, Stoddard, Rajendran, "High Strain-Rate Energy Absorption of Dried Distillers Grains and Solubles Using Split Hopkinson Pressure Bar Technique" Senior Capstone Design Presentation 2019 (*Presented while at Junior Standing*)
2. Turner, I., Baird, R., Serafin, S., Torrado, J., **Chaudhary, B.**, Hughes, H., Stoddard, D., "High Strain-Rate Sensitivity and Energy Absorption of Duroprotect, A Fiber-Reinforced Ballistics Composite" Senior Capstone Design Presentation 2019 (*Presented while at Junior Standing*)

Teaching Experience

Undergraduate Teaching Assistant – Department of Mechanical Engineering

Professor: Dr. Shan Jiang

Course: Engineering Graphics Fundamentals (AutoCAD)

Fall 2019

Professor: Dr. Shan Jiang

Course: Statics (Engr 309)

Spring 2019 & Spring 2020

- Provide help sessions at several times during the week to clarify and assist students outside of class (both)
- Assist in class works as well as communication with student questions via email
- Prepared to give lecture if the professor is not available (statics)

Instructor: Damian Stoddard

Course: Material Science Laboratory (Engr 314)

Fall 2019 - Present

- Provide lectures and guidance on laboratory concepts, execution, and introduction to application of materials
- Assist in experimentation, report formatting, machines used in experiments and any laboratory questions
- Grade lab reports on the understanding of material as well as real-world applications and provide feedback

Math Tutor – Department of Mathematics

Aug 2018 – Aug 2019

- Reviewed class material with students by discussing text, working solutions to problems and reviewing assignments
- Helped students develop study and note-taking skills and learning strategies
- Proctored online examinations for Calculus I through IV as well as business calculus

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Awards, Honors and Grants

Honors Program, Sally McDonnell Barksdale Honors College	2018
International Academic Excellence Scholarship, University of Mississippi	2016
Phi Kappa Phi, Honor Society	2019
Tau Beta Pi, Engineering Honor Society	2018
Chancellor's Honor Roll, University of Mississippi	2016
Gamma Beta Phi, Honor Society	2017
Travel Grant, Department of Mechanical Engineering	2019

Technical Skills

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| • Conducting Split Hopkinson Pressure Bar Testing | • MATLAB |
| • Conducting Low Velocity Impact Testing | • AutoCAD drafting |
| • DIC Software Tracking | • PTC Creo |
| • GOM Software Tracking | • Inventor |
| • High Speed Photography | • SolidWorks |
| • Conducting Tension and Compression Testing Using Universal Testing Machine | • MIG Welding |
| • Computational Modelling using LAMMPS | • CNC, Milling |
| • Microsoft Word | • Laser / Steel Cutting |
| • Microsoft Excel | • Soldering |
| • Microsoft PowerPoint | • Grinding |
| • G-suite | • Band Sawing |

Campus Involvements

Olemiss Robotics Club (*Secretary*)
American Society for Mechanical Engineers (*Member*)
Society of Automotive Engineers (*Member*)
International and American Student Alliance (*Orientation Leader*)
Intercultural Communication at Olemiss (*Advisory Board*)
Institute of Electrical and Electronics Engineers (*Member*)

References

Mr. Damian Stoddard

Research Advisor, Laboratory Instructor, University of Mississippi
dlstodda@go.olemiss.edu
Carrier 124B, University, MS 38677-1848
(662) 915-5378

Dr. Shan Jiang

Research Advisor, Assistant Professor, University of Mississippi
jiang@olemiss.edu
Carrier 201E, University, MS 38677-1848
662-915-5808

Dr. Raju Mantena

Research Advisor, Professor, University of Mississippi
meprm@olemiss.edu
Carrier 201B, University, MS 38677-1848
662-915-5990

Paul Matthew Lowe

Machine Shop Supervisor, University of Mississippi
pmliii@olemiss.edu
Carrier 122A, University, MS 38677-1848
662-915-5380

Dr. Tejas Pandya

Academic Advisor, Assistant Professor, University of Mississippi
tspandya@olemiss.edu
Carrier 201G, University, MS 38677-1848

Mr. Ashok Timsina

High School Teacher, PhD candidate, University of Kentucky
atimsina12@uky.edu