CIMM Workforce Development

Where are they now?

Joshua Joffrion

Previous CIMM Contributions

Undergraduate Research Assistant in Electrical Engineering and Physics with Dr. Chester Wilson at Louisiana Tech University. Research for CIMM included the synthesis of carbon quantum dots through a variety of methods, the use of microplasmas in water spectroscopy, and selective electroplating.

Update

Mr. Joffrion is a PhD student and Research Fellow in Dr. Chester Wilson's group at Louisiana Tech University .

Pratik KC

Previous CIMM Contributions

Graduate Research Assistant with Dr. Arden Moore's group at Louisiana Tech University. Research for CIMM included the design and evaluation of the performance of novel low-profile heat sinks manufactured via 3D printing, microforming, and selective laser melting within a carefully controlled direct immersion cooling environment.

Update

Dr. KC graduated with a PhD in Engineering from Louisiana Tech University and is working as a Thermal Engineer for Applied Technology Associates in t(na)7 (r)k4t1 (r)c 0 Tw 0 -1.E2-vm(p)-5.e7 (s)-3.e5 (a)-2.E2-vhesh

Rami Khoury

Previous CIMM Contributions

Graduate Research Assistant with Dr. Louis Haber's group at Louisiana State University. Research for CIMM included the construction of a pump-probe reflectivity and time-resolved microscopy optical setup to investigate ultrafast heating and melting dynamics in metal alloy and semiconductor surfaces.

Update

Dr. Khoury graduated with a PhD in Ultrafast and Nonlinear Spectroscopy of Nanomaterials from Louisiana State University and is working as a Fiber Laser Engineer for nLIGHT.

Zilong Li

Yang Mu

Previous CIMM Contributions

Research Assistant and Professor of Mechanical Engineering at Louisiana State University. Mu helped design and build ultra-high vacuum systems to deposit metal/ceramic thin films, and carry out characterization on thin films prepared. A method of in-situ and ex -situ mechanical testing on thin film interfacial region was developed to test its integrity.

Update

Dr. Mu is currently employed by the Louisiana State University Shared Instrumentation Facilities (SIF), a part of the CIMM Core User Facilities (CUF), as a PhD technical staff member.

Chinedu Okafor

Previous CIMM Contributions

Graduate Research Assistant at Louisiana Tech University in Dr. Adarsh Radadia's group. Okafor helped to design and evaluate the performance of plastic FDM fabricated gas chromatograph columns with the aim of establishing the suitability of such columns for chemical analysis.

Update

Mr. Okafor graduated with a Masters in Chemical Engineering from Louisiana Tech University and is currently a Plant Manager for Linde in Salt Lake City, Utah.

Nabamita Pal

Previous CIMM Contributions

Postdoc Researcher at Louisiana Tech University in Dr. Chester Wilson's group. Pal researched perovskite solar cells and helped to develop a new nanostructured carbon composite that adheres at the nano scale.

Update

Dr. Pal graduated with a PhD in Micro and Nano Systems Engineering from Louisiana Tech University and is currently a Lecturer at Louisiana Tech University .

Jawala Parajuli

Previous CIMM Contributions

Graduate Research Assistant at Louisiana Tech University in Dr. Daniela Mainardi 's group. Parajuli helped perform Molecular Dynamics simulations and analysis to study segregation of bimetallic systems during solidification.

Update

Ms. Parajuli graduated with a Masters Degree in Quantum Chemistry/Molecular Science/Nanotechnology from Louisiana Tech University, and is currently an Integration & Yield Engineer for Global Foundries in New York .

CIMM Graduate Students
And
Post-doctoral Researchers

Specialization

Specialization

Heat transfer, thermal management, microfluidics.

Faculty Advisor: Arden L. Moore

Research

We conduct two- phase cooling experiments on using micro -finned and nanostructured surfaces for direct immersion cooling in dielectric liquids. We rely on surfaces manufactured by advanced and high throughput techniques such as “microscale roll molding” and “laser additive manufacturing”. High speed visualization and image processing are used in our studies to investigate the pivotal role of bubble dynamics in this passive heat transfer scheme.

Specialization

Computational materials science; Interatomic potential development; Molecular Dynamics (MD) simulations of materials and interfaces.

Faculty Advisor: Collin D. Wick, B. Ramu Ramachandran

Research

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Asela Dikkumbura

Graduate Research Assistant
PhD Candidate in Chemistry
Louisiana State University

Contact

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Specialization

Synthesis and characterization of nanomaterials, transient absorption spectroscopy, second- harmonic generation, pump -probe reflectivity.

Faculty Advisor: Dr. Louis H. Haber

Research

Our project with CIMM is focused on laser heating and melting dynamics of metal, metal alloy, and semiconductor surfaces. We are also preparing silicon, iron, and aluminum nanoparticles to investigate their ultrafast laser melting dynamics.

Huan Ding

Graduate Research Assistant
PhD Candidate in Mechanical Engineering
Louisiana State University

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Specialization

Novel metal/alloy materials fabricated by Selective Laser Melting (SLM); Metal/alloy Powder Metallurgy; Materials Testing.

Faculty Advisor: Shengmin Guo

Research

We design alloy and evaluate the sample's microstructure and mechanical property which was manufactured via 3D printing (such as Selective Laser Melting and Fused Deposition Modeling). We also calculate phase diagram and thermodynamics behavior during the sintering and solidification process with Thermodynamic calcu lation software.

Ali Hemmasian Ettefagh
Graduate Research Assistant
PhD Candidate in Mechanical

Specialization

Corrosion behavior of different alloys in diverse environments and evaluate it by the means of electrochemical methods
Faculty Advisor: Dr. Shengmin Guo

Research

Evaluation the corrosion behavior of 3D printed parts from stainless steel and titanium in sea water environment and play with the production and post production parameters to gain the best results.

Specialization

Material science; N ano and microparticle synthesis and MEMS/NEMS device fabrication
Faculty Advisor: Dr Chester Wilson

Research

We investigate ways to synthesize magnetic nanoparticles for additive manufacturing. These nanoparticles are utilized to manufacture strong permanent magnets using selective laser synthesis. These nanoparticles are also used to fabricate thin film electrical devices .

Frank A. McKay

Graduate Research Assistant
PhD in Engineering Physics & Astronomy
Louisiana State University

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Specialization

Elucidation of structural, electronic, and chemical properties of metal alloys.
Faculty Advisor: Phillip Sprunger

Research

We synthesize and characterize the surface and bulk electronic, chemical, and structural properties of high entropy alloys. This includes employing a number of synchrotron-based VUV/x-ray spectroscopies, as well as elevated temperature scattering probes.

Abu Shama Mohammad Miraz

Graduate Research Assistant
PhD in Engineering
Louisiana Tech University

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Specialization

Computational materials science; multiscale simulations of materials and interfaces
Faculty Advisor: Collin D. Wick, B. Ramu Ramachandran

Research

We develop inter-atomic potential models, learned using genetic algorithm, for metal/ceramic interfaces and perform multi-scale atomistic calculations to study their mechanical behavior. In addition, we carry out predictive simulations of doping the metal/ceramic interfaces aimed at enhancing their overall strength.

Specialization

Computational Mechanics, Computational Material Science, Fracture Mechanics, Plasticity in Metals, Lightweight Metals, Multi- scale Interface Engineering .
Faculty Advisors: Dr. Dorel Moldovan and Dr. W5 (e)1.t2JMeng

Research

My field of study is multiscale computational material science with focus on solid interfaces. In our research, using numerical simulations at various length scales, we address the structure- property correlations in materials with high density of interfaces. By a

Bryant Redford

Graduate Research Assistant
PhD Student
Molecular Science and Nanotechnology
Louisiana Tech University

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Specialization

Creation of metal and alloyed metal powders using electrochemical methods suitable for 3D printing. Improving material attributes of 3D printable plastic using nanocomposites.
Faculty Advisor: Dr. Chester Wilson

Research

Develop a Samarium Cobalt powder that would be suitable for 3D printing. Currently there are no permanent magnets that are available for 3D printing and SmCo was chosen due to umiotablent mame 2.15softitftit (p)-1 0 T49-5sot dar2e (b)-1 utm (mi-2 (o)-0.8 r7.2.568 T6pe)]TJ

Specialization

Engineering mechanics; Experimental mechanics; Dislocation dynamics.

Faculty Advisor: Dr. Guoqiang Li

Research

Ongoing research, supported by CIMM, is on interfacial fracture of 3D printed structures using selective laser melting (SLM). It mainly focuses on the interfacial fracture under Mode I, Mode II, and mixed Mode loading and numerical modeling of fracture of SLM printed tensile specimen. Analytical modeling of the interfacial fracture of 3D printed metallic specimens, which have periodic zigzag fracture path, is being developed.

Specialization

Nanoparticle infused Additive Manufacturing

Faculty Advisor: Dr. Damon Allen Smith

Research

This research project primarily focuses on three major aspects: synthesis and inclusion of metallic nanoparticles within a polymer matrix, extrusion of composite filaments and three- dimensional (3D) printing of multifunctional polymer composites. Specifically, we are interested in synthesizing silver nanoparticles because of their enhanced antim icrobial, mechanical and optical properties. Silver reinforced 3D printed polymer specimen can have applications in varied fields like bio -mechanics, electronics, and additive manufacturingitiltcatinio.528 0 Td ( )Tj EMC /P5<</MCID 12 >>74C 0 -1.563 TD (ET /A(p)factTj ETyp

Specialization

Development of thermo- mechanical coupled strain gradient plasticity model based on computational solid mechanics in small-scale structures.

Faculty Advisor: George Z. Voyiadjis

Research

We investigate an in -depth analysis on the micro-

Specialization

Molecular dynamics simulations and modeling. Data analysis and work -flow development.

Faculty Advisor: Thomas C. Bishop

Research

I’m working on developing and managing CIMMHub as a platform for CIMM investigators

Specialization

Computational fluid dynamics; Numerical heat transfer; Computational mathematics
Faculty Advisor: Dr. Don Liu

Research

Our project supported by CIMM is about the simulation of laser- heating induced latent heat input and sensible heat transfer between melt, mushy and solid metal materials with

Xiaoman Zhang

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Specialization

Experimentation on micro scale plasticity and mechanical integrity of metal/ceramic interfaces; high/ultra- high vacuum vapor phase deposition and thin film crystal growth; materials characterization by X -ray and electron beam methods.
Faculty Advisor: Wen Jin Meng

Research

We measure mechanical failure of ceramic/metal interfaces under shear, compression, and tension loading through in-situ microscale mechanical testing with concurrent electron microscopy observations; we grow heteroepitaxial thin film crystals and study mechanical response of such interfaces.

Jikui Zhao

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PhD Candidate in Engineering
Louisiana State University

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Specialization

Experimentation on small scale metal forming and associated materials characterization and mechanical testing.
Faculty Advisor: Wen Jin Meng

Research

We are conducting microscale metal extrusion experiments in an attempt to elucidate various kinds of mechanical size effects encountered in large strain small scale plastic deformation of materials.