

Konstantinos (Kostas) Sierros

Curriculum Vitae

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Konstantinos (Kostas) Sierros

Current Position & Personal Details

Work

**Full Professor
& Associate Chair for Research
and Graduate Programs**

West Virginia University (WVU) 416 Linden Street
Mechanical, Materials
& Aerospace Engineering
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Home

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Education

2006 PhD Materials Science & Engineering

University of Birmingham (U.K.), School of Metallurgy and
Materials – (Thesis: Mechanical properties and
characterisation of substrates for flexible displays – Advisor:
Dr. Stephen N. Kukureka)

2002 MSc Polymer Engineering & Science

University of Birmingham (U.K.), School of Metallurgy and
Materials

2001 BEng Mechanical Engineering

University of Newcastle Upon Tyne (U.K.), Department of
Mechanical, Materials and Manufacturing Engineering

Awards & Achievements

2023 Fellow of Institute of Materials, Minerals and Mining (FIMMM) – IOM³

2022 Dean's Leadership Fellow For Research – Statler College of Engineering – West Virginia University

2022 Symposium Organizer and Session Chair at 150th Annual TMS Meeting, Anaheim, Ca, February 27- March 3, 2022 (Symposium: Recent Advances in Functional Materials and 2D/3D Processing for Sensors and Electronic Applications – 2D/3D Printed Electronics Advances)

2021 Outstanding Researcher – Statler College of Engineering and Mineral Resources – WVU

2020 Guest Editor JOM – Recent Advances in Functional Materials and 2D/3D Processing for Sensors and Electronic Applications (Official Publication of The Minerals, Metals & Materials Society)

2020 Symposium Organizer and Session Chair at 149th Annual TMS Meeting, San Diego, Ca, February 23-27, 2020 (Symposium: Recent Advances in Functional Materials and 2D/3D Processing for Sensors and Electronic Applications – 2D/3D Printed Electronics Advances)

2019 Symposium Organizer and Session Chair at 148th Annual TMS Meeting, San Antonio, TX, March 10-14, 2019 (Symposium: Recent Advances in Functional Materials and 2D/3D Processing for Sensors and Electronic Applications – 2D/3D Printed Electronics Advances)

2018 Session Chair at 147th Annual TMS Meeting, Phoenix, Az, March 11-15, 2018 (Symposium: Recent Advances in Functional Materials for Printed, Flexible and Wearable Electronics – Material, Process Integration, and Characterization)

2018 Advisor of WVU's Human Powered Vehicle Team. Team Participated for 6th Year in ASME's East Human Powered Vehicle Design Competition. Team Finished 8th in Design Competition (out of 47). Penn State University, University Park, Pa, April 13-15, 2018

2017 Advisor of WVU's Human Powered Vehicle Team. Team Participated for 5th Year in ASME's East Human Powered Vehicle Design Competition. Team Finished 4th in Innovation Competition (out of 45). Tennessee Tech University, Cookeville, TN, April 21-23, 2017

2017 WVU Outstanding Undergraduate Research Advisor Award Finalist

2017 Nominated by WVU's Statler College and Participated in National Effective Teaching Institutes (NETI-1), San Diego, CA, Jan. 7-9, 2017

2016 George W. Weaver Award for Outstanding Teaching of Mechanics – Department of Mechanical and Aerospace Engineering, WVU

2016 Member of WVU Energy Faculty Advisory Group

2016 WVU Outstanding Undergraduate Research Advisor Award Finalist

2016 Session Chair at ICMCTF 2016 Conference, San Diego, CA, April 25-29, 2016

2015 WVU MRS Student Chapter Advisor

2015 WVU Young Innovator Award Nominee, Morgantown, September 22, 2015

2014 Session Chair at TCM 2014 Conference, Chania, Crete, Greece, October 12-17, 2014

2013 Honorary Research Fellow – University of Birmingham UK – School of Metallurgy and Materials

2013 Advisor of WVU's Human Powered Vehicle Team. Team Participated for 2nd Year in ASME's East Human Powered Vehicle Design Competition. Team Finished 10th Overall (out of 32). Ferris State University, Big Rapids, MI, April 27-19, 2012

2013 N. J. Morris, S. Cronin, D. Carden, G. J. Cordonier **K. A. Sierros** "Flexible Touch Sensor for Haptics" FlexTech 2013, Phoenix, Az, USA, February 2013 – Best Poster Award

2012 Advisor of WVU's Human Powered Vehicle Team. Team Participated for 1st Year in ASME's East Human Powered Vehicle Design Competition. Team Finished 7th Overall (out of 34). Grove City College, Grove City, PA, April 27-19, 2012

2012 WVU Human Powered Vehicle Team Received Award for the Most Reliable Vehicle in Competition. ASME East Human Powered Vehicle Design Competition Grove City College, Grove City, April 27-19, 2012

2012 Invited Faculty Affiliate Member of the Program Evaluation and Research Center (PERC) in the College of Human Resources and Education at WVU

2011 Invited to Serve as External Postgraduate Thesis Examiner by University of Birmingham's Metallurgy and Materials Department

2010 Invited to Serve as a Member of Board of Governors for the International Conference of Transparent Conducting Materials (TCM 2010), Hersonissos, Crete, Greece, October 17-21, 2010

2010 Session Chair at TCM 2010 Conference, Hersonissos, Crete, Greece, October 17-21, 2010

2009 Honored by the Greek Government as a Distinguished Scientist Who Excels in Scientific Research Abroad

2004 Winner of the Institute of Materials (IOM³) U.K. and Ireland Graduate Student Presentation Competition

**Advisees
Awards**

2012 Sean Cronin – WVU Provost Fellowship

2014 Jacob Cordonier – NSF Graduate Research Fellowship

2017 Lynnora Grant – NSF Graduate Research Fellowship

2017 Jared Beard – Barry Goldwater Scholarship

2017 Domenic Cipollone – WVU Provost Fellowship

2018 Muriithi David Kem – SURE WVU Best Poster

2019 Harrison Loh- NSF Graduate Research Fellowship

2020 Nicholas Winch – WVU Ruby Graduate Fellow

2024 Kaden Adams – WVU UG Research Symposium
Poster Winner

**Invited
Talks**

2025 “Advanced Manufacturing – Direct Write Assembly of multifunctional materials for energy, sensing and space applications” Athena Talks, European University Alliance, Hellenic Mediterranean University, April 4, 2025

2023 “Direct Write Assembly of Multifunctional Inks and Structures: Recent Developments, Applications and Future Perspectives” Condensed Matter Program, Department of Physics and Astronomy, West Virginia University, Aug. 29, 2023

2022 “Additive manufacturing of embedded electronics for smart and soft robotics: Current progress and future perspectives” ICAM 2022, ASTM International Conference on Additive Manufacturing” Oct 31-Nov 4, 2022, Orlando FL

2021 "Additive manufacturing of multifunctional materials" Materials Science & Engineering Seminar Series – WVU, Spring 2021

2020 "Direct Ink Writing of Multifunctional Structures using Solution-based Nanoinks" C. Eugene Bennett Department of Chemistry, West Virginia University, Dec. 2, 2020

2020 "Direct Ink Writing of Multifunctional Materials: Current Approaches and Future Perspectives" Mechanical & Aerospace Engineering, Rutgers University, Oct. 21, 2020

2019 "Robotic Manufacturing of Multifunctional Hierarchical Materials for Energy and Sensing Applications" 6th IC4N – 2019, June 30-July3, 2019, Corfu, Greece

2019 "3D Printing of Hierarchical Multifunctional Foams" 2019 TMS Annual Meeting and Exhibition, Recent Advances in Functional Materials and 2D/3D Processing for Sensors and Electronic Applications – 2D/3D Printed Electronics Advances, San Antonio, TX, March 10-14, 2019

2018 "3-D Printing of Metals and Metal Oxides from Solution for Energy and Biomedical Applications" 2018 TMS Annual Meeting and Exhibition, Recent Advances in Functional Materials for Printed, Flexible and Wearable Electronics, Phoenix, AZ, March 11-15, 2018

2017 "3-D Printing of Photocatalytic Materials for Energy applications" Advances on Photocatalysis 2017, 2nd International Workshop, Heraklion, Greece, July 14-16, 2017

2017 "New Paradigms of Additive Manufacturing of Solution-Based Materials for Energy and Biomedical Applications" Oregon State University, Department of Chemical, Biological, and Environmental Engineering, Corvallis, OR

2016 “New Paradigms for Enabling Printing of Flexible Optoelectronics Through Engineered Metal-Organic Inks and Direct Writing” 2016 TMS Annual Meeting and Exhibition, Recent Advances in Functional Materials for Printed, Flexible and Wearable Electronics, Nashville, TN, February 14 – 18, 2016

2015 “Direct Writing of Functional Structures on Polymers for Flexible Optoelectronics” DOE – NSF Workshop on Additive Manufacturing, ORNL, Oak Ridge, TN, June 3, 2015

2014 “Direct Writing Techniques of Multiple Wet Chemistries on Flexible Large-Area Substrates” International Conference of Transparent Conducting Materials (TCM 2014), Hersonissos, Crete, Greece, October 2014

2013 “Flexible Electronics for Sustainable Technologies” Samsung Display, USA, March 8, 2013

2011 “Structural Integrity of Multifunctional Coatings” University of Southampton, National Center of Advanced Tribology, Southampton, U. K., March 7, 2011

2010 “Towards Durable Transparent Conducting Films for Flexible Devices”, International Conference of Transparent Conducting Materials (TCM 2010), Hersonissos, Crete, Greece, October 17-21, 2010

Administrative Roles

2022- Associate Chair for Research and Graduate Programs

West Virginia University, Mechanical, Materials & Aerospace Engineering

- Developing Strategies, Identifying Opportunities, and Leading Initiatives to Promote MMAE Faculty Research Development at all Levels of their Career
- Developing Strategies and Initiatives to Promote and Encourage MAE Undergraduate Participation in Research Projects and Entrepreneurial Activities

- Developing and Implementing Plans to Increase MMAE Graduate Student Recruitment and Retention
- Organizing, Supporting, and Leading Efforts to Develop Winning Research Proposals by Forming Multidisciplinary and Collaborative Research Teams within MAE, Statler College, WVU, and Beyond
- Developing Strategies and Initiatives to connect and Affiliate MMAE with other Engineering and Applied Science Departments for Collaborative Research Initiatives on Regional, National, and International Level
- Promoting and Celebrating MMAE Faculty Research Accomplishments through Various Media
- Innovations in Graduate Education and Workforce Development for MMAE Department

2022-2023 Dean’s Leadership Fellow for Research

West Virginia University, Statler College of Engineering

- College-wide Research and Leadership Activities such as Organizing Discussion Forums for Assembling and Supporting Multidisciplinary Research Teams for Successfully Applying to Relevant Funding Bids
- Development of Strategies for Growing New Research Areas, and Developing Beyond College Collaborations with Other WVU Colleges and Research Institutions
- Mentoring/Supporting Junior Faculty for Developing Successful Research Programs

Research Experience

2024- Full Professor

West Virginia University, Mechanical, Materials & Aerospace Engineering

- Additive Manufacturing of Multi-Functional Materials with Direct Ink Writing and Electrohydrodynamic Jet Printing
- 3D Printing of Continuous Fiber Reinforced Composites for Aerospace
- Design and Formulation Science for Printable Ink Development
- In-Space and On-Demand Additive Manufacturing

- Dry 3D Printing Technologies
- Research and Innovations in Graduate Education

2018-2024 Associate Professor (Tenured)

West Virginia University, Mechanical, Materials & Aerospace Engineering

- Design, Processing and Characterization of Polymer-Based and Composite Materials for Sustainable Technologies (Energy, Environmental, Soft Robotics)
- Ink Formulation Science for Direct Write Assembly of Functional Materials (Metals, Ceramics, Polymers), Foams, and Devices
- Advanced Manufacturing in Space, Microgravity AM
- Embedded Smart Sensors
- 2D Nanomaterials
- Engineering Education

2012 - 2018 Assistant Professor

West Virginia University, Mechanical & Aerospace Engineering

- Design, Development and Characterization of Materials for Large-Area Sustainable Energy Technologies
- Additive Manufacturing, Direct Writing of Functional Materials and Foams
- Energy Harvesting
- Biodegradable Electronics
- Sensors
- Engineering Education

2008-2012 Research Assistant Professor

West Virginia University, Mechanical & Aerospace Engineering

- Mechanics of Thin Film Composites for Flexible Optoelectronic Applications
- Development of Tailored Nanoscale Films with Sustained Functionality for Tribological Applications
- Thin Film Tribological Studies

- Development of Multifunctional Polymer Composite Films on Flexible Substrates for Display and Energy Applications

2007- 2008 Postdoctoral Research Fellow

West Virginia University, Mechanical & Aerospace Engineering

- Design and Fabrication of Polymer Nanorods for Stimulus Responsive Surfaces
- Stress-Corrosion Studies of Optoelectronic Device Architectures
- Electromechanical Studies of Transparent Conducting Oxides on Polymers

2002- 2006 PhD Research Student

The University of Birmingham, Metallurgy & Materials (U.K.)
PhD sponsored by Engineering & Physical Sciences Research Council (U.K.)

- Design and Development of a Mechanical Testing Research Instrument for Structural Integrity Studies of Thin Films
- Nanotribological, Surface and Mechanical Property Investigations of Physical Vapor Deposited Films
- Nanostructural Physical Vapour Deposition and Characterization of Ceramic Films used in Electronic Display Applications

2002 MS Research Student

- Thermal Analysis and Degradation of Polymeric Coatings
- Mechanics and Tribology of Touch-Screen Devices and Components

2001 BEng Undergraduate Researcher

University of Newcastle upon Tyne, Mechanical Engineering (U.K.)

- Mechanical Properties Investigation of UV degraded Polymers
- Microscopical Studies of UV Exposed Polymer Surfaces

Teaching Experience

2024- Full Professor

West Virginia University; Mechanical, Materials & Aerospace Engineering

(Student Evaluation of Instruction Overall Score: 4.52/5)

- MSEN 686: Materials Science and Engineering Seminar, Fall 2025
- MAE 243: Mechanics of Materials, Fall 2025
- MAE 275S/375S: Aerospace Design 1/2, Fall 2025
- MAE 430S/431S: Microgravity Research 1/2, Fall 2025
- MAE 672: Project Report, Fall 2025
- MAE 695/795: Independent Study, Fall 2025
- MAE 697/797: Research, Fall 2025
- MAE 790: Teaching Practicum, Fall 2025
- MAE 695: Independent Study, Summer 2025
- MAE 697/797: Research, Summer 2025
- MAE 790: Teaching Practicum, Summer 2025
- MAE 275S/375S: Aerospace Design 1/2, Spring 2025
- MAE 343/353: Intermediate Mechanics of Materials, Spring 2025
- MAE 254L: Materials Engineering Lab, Spring 2025
- MAE 430S/431S: Microgravity Research 1/2, Spring 2025
- MAE 686: Materials Science and Engineering Seminar, Spring 2025
- MAE 243: Mechanics of Materials, Fall 2024
- MAE 275/375S: Aerospace Design I/II, Fall 2024
- MAE 430/431S: Microgravity Research I/II, Fall 2024
- MAE 686: Materials Science and Engineering Seminar, Fall 2024

2018-2024 Associate Professor (Tenured)

West Virginia University; Mechanical, Materials & Aerospace Engineering

(Student Evaluation of Instruction Overall Score: 4.47/5)

Instructor of the following courses:

- MAE 472: Capstone Design-Human Powered Vehicles, Spring 2018
- MAE 241: Engineering Statics, Spring 2018
- MAE 243: Mechanics of Materials, Summer 2018

- MAE 241: Engineering Statics, Fall 2018
- MAE 471: Capstone Design-Human Powered Vehicles, Fall 2018
- MAE 686: Materials Science and Engineering Seminar, Fall 2018
- MAE 460: Microgravity Research, Spring 2019
- MAE 241: Engineering Statics, Spring 2019
- MAE 472: Capstone Design-Human Powered Vehicles, Spring 2019
- MAE 243: Mechanics of Materials, Summer I, 2019
- MAE 471: Capstone Design-Human Powered Vehicles, Fall 2019
- MAE 241: Engineering Statics, Fall 2019
- MAE 241: Engineering Statics, Spring 2020
- MAE 472: Capstone Design-Human Powered Vehicles, Spring 2020
- MAE 243: Mechanics of Materials, Summer 2020
- MAE 241: Engineering Statics, Fall 2020
- MAE 472: Capstone Design-Human Powered Vehicles, Fall 2020
- MAE 243: Mechanics of Materials, Spring 2021
- MAE 460: Microgravity Research, Spring 2021
- MAE 343: Intermediate Mechanics of Materials, Fall 2021
- MAE 460: Microgravity Research, Fall 2021
- MAE 343: Intermediate Mechanics of Materials, Spring 2021
- MAE 460: Microgravity Research, Spring 2021
- MAE 243: Mechanics of Materials, Fall 2022
- MAE 460: Microgravity Research, Fall 2022
- MAE 686: Materials Science and Engineering Seminar, Spring 2023
- MAE 460: Microgravity Research, Spring 2023
- MAE 686: Materials Science and Engineering Seminar, Fall 2023
- MAE 460: Microgravity Research, Fall 2023
- MAE 343/353: Intermediate Mechanics of Materials, Spring 2024
- MAE 686: Materials Science and Engineering Seminar, Spring 2024

- MAE 430S/431S: Microgravity Research I/II, Spring
Spring 2024

2012-2018 Assistant professor

West Virginia University, Mechanical & Aerospace
Engineering

Instructor of the following courses:

- MAE 471: Capstone Design-Human Powered Vehicles,
Fall 2012
- MAE 472: Capstone Design-Human Powered Vehicles,
Spring 2013
- MAE 693L: Thermodynamics and Kinetics of Materials,
Spring 2013 (Graduate level)
- MAE 471: Capstone Design-Human Powered Vehicles,
Fall 2013
- MAE 244: Dynamics and Strength of Materials Lab (2
Sections), Fall 2013
- MAE 241: Engineering Statics, Spring 2014
- MAE 493 M: Introduction to Additive Manufacturing, Fall
2014
- MAE 241: Engineering Statics, Spring 2015
- MAE 583: Thermodynamics and Kinetics of Materials,
Spring 2015 (Graduate level)
- MAE 241: Engineering Statics, Fall 2015
- MAE 493 M: Introduction to Additive Manufacturing, Fall
2015
- MAE 472: Capstone Design-Human Powered Vehicles,
Spring 2016
- MAE 583: Thermodynamics and Kinetics of Materials,
Spring 2016 (Graduate level)
- MAE 471: Capstone Design-Human Powered Vehicles,
Fall 2016
- MAE 493M: Introduction to Additive Manufacturing, Fall
2016
- MAE 472: Capstone Design-Human Powered Vehicles,
Spring 2017
- MAE 583: Thermodynamics and Kinetics of Materials,
Spring 2017 (Graduate level)
- MAE 243: Mechanics of Materials, Fall 2017

- MAE 471: Capstone Design-Human Powered Vehicles, Fall 2017
- MAE 241: Engineering Statics, Spring 2018
- MAE 472: Capstone Design-Human Powered Vehicles, Spring 2018

2008-2012 Research Assistant Professor

West Virginia University, Mechanical & Aerospace Engineering

Instructor of the following courses:

- MAE 241 – Engineering Statics, Summer 2012
- MAE 693 – Thermodynamics and Kinetics of Materials, Spring 2012 (Graduate level)
- MAE 472: Capstone Design-Human Powered Vehicles, Spring 2012
- MAE 640: Continuum Mechanics, Fall 2011 (Graduate level)
- MAE 343: Intermediate Mechanics of Materials, Fall 2011
- MAE 241: Engineering Statics, Summer 2011
- MAE 244 (2 sections): Dynamics and Strength of Materials Laboratory, Spring 2011
- MAE 316: Numerical Analysis Methods of Engineering Systems, Summer 2010
- MAE 244 (5 sections): Dynamics and Strength of Materials Laboratory, Spring 2010
- MAE 241: Engineering Statics, Summer 2010
- MAE 640: Continuum Mechanics, Summer 2009 (Graduate level)
- MAE 244 (7 sections): Dynamics and Strength of Materials Laboratory, Spring 2009
- MAE 493N/593T: Tribology in Mechanical Engineering, Fall 2010 (Undergraduate/Graduate level)

2007-2008 Postdoctoral Research Fellow

West Virginia University, Mechanical & Aerospace Engineering

Instructor of the following courses:

- MAE 343: Intermediate Mechanics of Materials, Summer 2008

- MAE 640: Continuum Mechanics, Summer 2008 (Graduate level)
- MAE 243: Mechanics of Materials, Spring 2008
- PHYS 293K/ENG 493E: Introduction to Nanotechnology, Spring 2008
- MAE 242: Engineering Dynamics, Fall 2007

2002-2005 Teaching Assistant in Engineering

The University of Birmingham, School of Metallurgy & Materials (U.K.)

- Polymer Engineering Laboratory
- Materials Characterization Laboratory
- Polymer Rheology Laboratory
- Composite Beam Design Laboratory
- Product Design with Plastics Laboratory
- Blow Molding of Plastic Films Laboratory

Course Development

- 1) MAE 493N/593T: Tribology in Mechanical Engineering, Fall 2010
- 2) MAE 471: Capstone Design-Human Powered Vehicles, Fall 2012
- 3) MAE 472: Capstone Design-Human Powered Vehicles, Spring 2012
- 4) MAE 493M: Introduction to Additive Manufacturing, Fall 2014
- 5) MAE 254L: Materials Engineering Laboratory, Spring 2025

Educational Outreach

- 1) Teaching 12th Grade Science Students at Fairmont Senior High School. "Energy Efficient Buildings and Structures", Fairmont, WV, 2010
- 2) Teaching 11th Grade Science Students at West Virginia School of Deaf. "Utilization of Graph Plotting Software for Presenting Scientific Results", Romney, WV, 2011

- 3) Career Café Participation Presenting to 5th Graders about Engineering and 3D Printing, Mountainview Elementary, Morgantown, WV, Dec. 2016
- 4) CAD and Additive Manufacturing Instruction to 6th-8th Grade Teachers as Part of TESAL (Teachers Engaged in STEM and Literacy) Program funded by the West Virginia Department of Education (RESA 3 – Math Science Partnership), Charleston, WV, Oct. 2017

Supervisory Experience

PhD Candidates

- | | |
|--------------------|---|
| 2021-2023 | Craig Joiner, “Active Mixing Strategies for Multimaterial Direct Ink Writing” |
| 2020-2021 | Claudio Marci, “Graphene-based 3D Printed Sensors” (Visiting researcher from Milan Polytechnic, Italy) |
| 2020-2024 | Eda Aysal, “Direct Ink Writing of Stainless Steel using Biobased Formulations” |
| 2019-2023 | Kathrine Curtin, “3D Printed Microfluidic Devices for Advanced Fluid Manipulation in Biomedical Applications”
Co-supervised with Prof. Li, WVU Chemistry |
| 2019-2024 | Nicholas Winch, “3D Printing of Batteries” |
| 2018-2025 | Henry Loh, “Graphene Liquid Phase Exfoliation and THz Characterization” West Virginia University Mechanical & Aerospace Engineering |
| 2017 - 2022 | Domenic Cipollone (WVU Provost Fellow), “Direct Ink Writing Printability: Ashby-like Plots for Guided Design” West Virginia |

University Mechanical & Aerospace Engineering

2013- Derrick Banerjee (Ruby Fellow), "Multimaterial Direct Ink Writing of Embedded Sensors", West Virginia University Mechanical & Aerospace Engineering

2014-2017 Maria Torres Arango, "Engineered Inks for Environment Friendly Additive Manufacturing of Hierarchical Microstructures", West Virginia University Mechanical & Aerospace Engineering

2014- Jacob Cordonier (NSF Fellow), "Surface Force-Driven Direct Ink Writing of Textured Thin Films", West Virginia University Mechanical & Aerospace Engineering

2011-2015 Nicholas J. Morris (NSF Fellow), "Tribo-Mechanical Investigation of the Functional Components used in Flexible Energy Harvesting Devices", West Virginia University, Mechanical & Aerospace Engineering

2009-2013 Theodros Bejital, "Electromechanical Durability of Flexible Optoelectronic Devices", West Virginia University, Mechanical & Aerospace Engineering

2007-2010 Brice Gnahore, "Mechanical and Thermal Properties of Aerogel Materials for Energy Efficient Buildings", West Virginia University, Mechanical & Aerospace Engineering

MS Candidates

2023-2025 Noah Osborne, "3D Printing of Fiber Reinforced Composites"

- 2022-2025** Fahrettin Kilic, "Coaxial Direct Ink Writing of Smart Wearables"
- 2021-2023** John Burke, "Multimaterial, Core-Shell Direct Ink Writing of Flexible Strain Sensors for Pneumatically Actuated Soft Robotic Hinge Joints"
- 2016 - 2018** Daryl Kwakye-Ackah, "The Nakahara Effect and Its Influence On Solution-Based 3D Printed Films" West Virginia University, Mechanical and Aerospace Engineering
- 2013-2015** Olatunde Abidakun, "Direct Writing of Aluminum Doped Zinc Oxide for Optoelectronic and Energy Device Applications", West Virginia University, Mechanical and Aerospace Engineering
- 2014-2018** Andrew Hoover, "Design and Development of Sustainable Human Powered Vehicles", West Virginia University, Mechanical and Aerospace Engineering
- 2013-2015** Sai Suvineeth Ramayanam, "Fundamental Study of Nano-Scale Adhesion and Friction Properties of Graphene in Ambient Air and Liquid Environments", West Virginia University, Mechanical and Aerospace Engineering
- 2012-2013** Kyle Burrows, "Influence of Annealing Temperature on the Mechanical Properties of Sol-Gel ZnO Films", West Virginia University, Mechanical and Aerospace Engineering
- 2011-2013** Sean Cronin, "Towards Direct Fabrication of Functional Patterns on Large-Area Substrates for Flexible Devices" West Virginia University, Mechanical & Aerospace Engineering

2010-2011 Philip Mcelfresh, “Hybrid Organic/Inorganic Flexible Structures: Low Temperature Deposition of Silver Conductive Tracks on Flexible Substrates” West Virginia University, Mechanical & Aerospace Engineering (Advisor)

Undergraduate Students

2025- Lucas Marsh, Aidan Porter, Abigail Sanders, Reese Carpenter, Lara Johnson

2024-2025 Cole Lambert

2023-2025 Kaden Adams

2022- Kaileb Buttler

2021-2022 Dylan Melin, Isabelle Jacinto, Kyliegh Anderson

2020-2022 Miles Nelson, Nate Wimer

2019-2021 John Burke, Cicely Sharafati, Isabelle Jacinto

2018-2020 Christine Hernandez, Muriithi-David Kem

2018-2019 Alexandra Wolfe

2017-2019 Jason Gibson, Nick Strogon

2015-2018 Jared Beard (Goldwater Fellow), Henry Loh (NSF Fellow)

2014-2017 Lee Chirpas, Anna Cokeley, Alana Valença de Andrade, Domenic Cipollone (WVU Provost Fellow), Lynnora Grant (NSF Fellow), Irene Darkwaah, Kerwin Moreland, Molly Callaghan, Kristina Sebacher

- 2013-2014** John Cordonier, Arielle Gaither, Chris Nestor (Advisor)
- 2012-2014** Jacob Cordonier, Dillon Carden (Advisor)
- 2007-2012** Day-to-Day Supervision of 15 Undergraduate Students (3 Females) including NSF Fellows Nicholas Morris, Edward Chambers and NASA WV Space Grant Scholar Sean Cronin
- 2002-2006** Day-to-Day Supervision of 3 Undergraduate Students (1 Female) at The University of Birmingham (U.K.), School of Metallurgy & Materials

Analytic Table of Past Undergraduate Researchers and their Achievements

FEST Lab Undergrads since 2011	Awards Earned	Post-Grad Work/Accomplishments	Clubs/Activities
Sean Cronin	NASA WVSG Fellow	MSME, University Provost Fellow, Works at Bechtel Corp.	WVU Hockey Team
Derrick Banerjee	NASA WVSGC Fellow, WVU Outstanding Senior, NSF Fellow Honorable Mention	MSME, Ruby Fellow, MRS Student Chapter (Treasurer)	Tau Beta Pi, ASME
Guy Cordonier	Goldwater Finalist, Udall Finalist, NASA WVSGC Fellow, STEM SURE, WVU Outstanding Senior	NSF Fellow, MRS Student Chapter (President)	Tau Beta Pi, Mortar Board, E4P service club, ASME, AIAA
Dillon Carden	NASA WVSGC Fellow	MBA, works at GM	WVU ecoCAR
Lee Chirpas	NUE, IRES	Works with DoD	MRS
Chris Nestor	NUE	MS in Mechanical Engineering	WVU ecoCAR
Arielle Gaither	NASA WVSGC Fellow	M/E Project Engineer at The Whiting-Turner Contracting Company	Varsity Track & Field
John Cordonier	NASA WVSGC Fellow	MS in Chemical Engineering	AIChE
Alana Andrade	NUE	MS in Chemical Engineering (University of Bahia – Brazil)	*(Exchange student from Brazil)

Domenic Cipollone	NUE, IRES, STEM SURE, Provost Fellow	Plans to continue to Grad School	MRS
Lynnora Grant	NUE, IRES, LSAMP, McNair, NSF Fellowship	Plans to continue to Grad School	MRS, NSBE (President)
Jared Beard	NASA WVSGC Fellow, IRES, Goldwater Fellow	Plans to continue to Grad School	MRS
Anna Cokeley	NUE, STEM SURE, IRES	Plans to continue to Grad School	MRS, Varsity Rowing, SWE
Kerwin Moreland	NUE, IRES	Plans to work in Industry	3D Printing Club, MRS
Harrison Loh	NASA WVSGC Fellow	Plans to continue to Grad School	Rocketry Club, Tau Beta Pi, WVU Wind Symphony, WVU Jazz Ensemble, WVU Fencing Club, Epsilon Tau Pi Eagle Scout Fraternity
Kristina Sebacher	NUE, IRES	Plans to continue to Grad School	AIChE, Alpha Omega Epsilon
Molly Callaghan	NUE, IRES	Plans to continue to Grad School	AIChE

NUE: Nanotechnology Undergraduate Education, IRES: International Research Experience for Students, MRS: Materials Research Society, AIChE: American Institute of Chemical Engineers, SWE: Society of Women Engineers, ASME: American Society of Mechanical Engineers, NSBE: National Society of Black Engineers

WVU Human Powered Vehicle Design Team Advisor

2011-2021 ~200 Undergraduate Student Members

Research Experience for Teachers (RET) National Science Foundation (NSF) Site Supervisor

Summer

2012 Dave Ruederberger, Roane County High School, WV

Research Project: "Design of Human Powered Vehicles"

Summer

2011 Leann Sayre, Fairmont Senior High School, WV
Cathy Jacquez, Fairmont Senior High School, WV

Research Project: "Flexible Solid-State Lighting Devices"

Summer

2010 Leann Sayre, Fairmont Senior High School, WV
Arsenio Meneses, Coral Glades High School, FL

Research Project: "Next Generation Transparent Conductors for Solar Panels"

Undergraduate Team Project Advisor for WVU Advanced Energy Initiative

Fall 2009 Team Members: Nicholas Morris, Corey Snyder, Ondrej Karas, and Darius Reynolds

Research Project: "Development of an Off-Grid Flexible LED Lighting Module"

Management of Research Facilities

2007-2012 Day-to-Day Management of Analytic Surface Characterization Facility of Mechanical & Aerospace Engineering Department at West Virginia University (More than 80 Users Trained)

Research Funding

(PI/coPI Sierros Total Share: >\$6.5 M)

Y. 2024

PI National Aeronautics & Space Administration
"Additive Manufacturing of a Flexible
Humidity Sensor" **\$100,000.00**

Y. 2023

coPI Kitty Hawk "Additive Manufacturing of CFRP
Composites" **\$570,426.00**

Y. 2023

coPI US Department of Energy "The Development of
an Advanced Infrared Hydrogen Fuel Flexible
Boiler for Food and Beverage Industry"
\$3,000,000

Y. 2021

PI National Aeronautics & Space Administration
"Particle-based Foams Spraying in
Microgravity" **\$649,997.00**

Y. 2020

PI National Science Foundation "PFI: RP
Demonstrate Novel 3D Printing of
Multifunctional Materials Enabled by
Microreactor Assisted Nanomaterial
Deposition" **\$180,000.00** – Collaborative
proposal with Oregon State (PI: C. -H. Chang)

Y. 2020

PI National Aeronautics & Space Administration
"3D Printable Soft Actuators with Embedded
Smart Sensors for Extraterrestrial Applications"
\$1,124,999.00

Y. 2020
Co-PI US DOE “Advanced Manufacturing of Ceramic Anchors with Embedded Sensors” **\$807,302**

Y. 2019
Co-PI US DOE “Additive Manufactured Dissimilar Metal Weldments for Advanced Ultra-Supercritical Power Plant” **\$999,966**

Y. 2019
PI International Zinc Lead Research Organization “3D Printing of Zn alloy” **\$5,000**

Y. 2019
PI National Aeronautics & Space Administration “3D Printing of Hierarchical Foams in Microgravity” **\$198,216**

Y. 2018
PI International Zinc Lead Research Organization “3D Printing of Zn alloy” **\$5,000**

Y. 2017
Co-PI O’Brien Seed Funding – WVU Energy Institute “Graphene-Nanoparticle Composite Sensors for Shale Gas Applications” **\$40,000**

Y. 2017
PI National Aeronautics & Space Administration “3-D Printed Titanium Dioxide Foams Under Extreme Environment Exposure At Low-Earth Orbit” **\$100,000**

Y. 2016
Co-PI WVU-Health Sciences “Biomimetic Integrated System for Targeted Neuroplasticity and Neuroprosthesis” **\$45,000**

Y. 2015
Co-PI Department of Energy “Direct Writing of Wireless Sensors for Harsh Environments” **\$399,965**

Y. 2015
PI Eastman Chemical Company, Va “Corrosion and Durability of Low-E Coated Polyester Films” **\$24,000**

Y. 2014
PI National Science Foundation
 "IRES: U.S.-Greece Undergraduate Engineering Research on Sustainable Indoor Living Environments" **\$249,896**

Y. 2013
PI National Science Foundation
 "NUE: NanoFIT for Sustainable Living" **\$199,005**

Y.2013
PI Eastman Chemical Company, Va
 "Corrosion and Durability of Low-E Films" **\$17,000**

Y.2012
coPI Grote Industries, Madison, In
 "Development of Next Generation of Flexible LED Automotive Applications" **\$60,035**

Y.2011
PI Grote Industries, Madison, In
 "Durable Solid State Lighting for Automotive Applications" **\$ 60,000**

Y.2010
coPI Europtec USA, Clarksburg, WV
 "Hydrophobic and Oleophobic Coatings" **\$50,000**

Y.2010
coPI CP Films, Martinsville, Va
 "Development of Next Generation Low-Emissivity Window Films for Energy Efficient Buildings" **\$50,000**

Y.2009
coPI Department of Energy
 "Laminated Thin Nanostructures for Energy Applications" **\$80,000**

Y.2009
PI Advanced Energy Initiative – WVU
 "Undergraduate Team Advising for Development Off-Grid Energy Devices" **\$1,000**

Y.2008
coPI Grote Industries, Madison, In
 "Flexible Solid State Lighting" **\$80,000**

Collaboration With Industry

- 2018 - 2020** Zinc Corp, Zn Direct Writing
- 2008-2014** Grote Industries, Madison, In
Research and Development of Flexible Solid State Lighting Products – 1 Product has been Launched to Market: Lightform
- 2008-2015** Eastman Chemical Company, Martinsville, Va
Research and Development of Nanoscale Flexible Films for Energy Applications – 1 Product has been Launched to Market: Enerlogic
- 2008-2013** Unidym Inc, Sunnyvale, Ca
Research and Development of Carbon Nanotube Based Flexible Transparent Conductors
- 2008-2012** Europtec USA, Clarksburg, WV
Research and Development of Wear Resistant Films for Glass Surfaces

Journal/Book Reviewing

- Member of Elsevier's Science and Engineering Book Proposal Review Panel
- Journal of Physics and Chemistry of Solids (JCPS), Elsevier
- Thin Solid Films, Elsevier
- Wear, Elsevier
- Journal of Alloys and Compounds (JAC), Elsevier
- Journal of the Taiwan Institute of Chemical Engineers, Elsevier
- Optik, Elsevier
- Sensor Letters, American Scientific Publishers
- Journal of The Electrochemical Society (JEC), The Electrochemical Society (ECS)
- Solid State Letters (SSL), The Electrochemical Society (ECS)

- Transactions on Nanotechnology, Institute of Electrical and electronics Engineers (IEEE)
- Journal of Society of Information Display (JSID), American Institute of Physics (AIP)
- Applied Surface Science, Elsevier
- Renewable & Sustainable Energy Reviews, Elsevier
- Transactions on Device and Materials Reliability, Institute of Electrical and Electronics Engineers (IEEE)
- Biofabrication, Institute of Physics (IoP)
- Progress in Organic Coatings (Elsevier)
- 3D Printing and Additive Manufacturing (Mary Ann Liebert)
- Journal of the American Ceramics Society (ACERS)
- Flexible and Printed Electronics (IoP)
- Journal of Materials Chemistry A (RSC)
- 3D Printing and Additive Manufacturing (Mary Ann Liebert)
- ACS Applied Electronic Materials
- ACS Applied Nanomaterials
- Langmuir, ACS
- ACS NanoLetters
- ACS Applied Materials and Interfaces
- ACS Applied Engineering Materials

Professional Societies

- Institute of Materials, Minerals and Mining (IOM³)
- The Minerals, Metals & Materials Society (TMS)
- American Society of Mechanical Engineers (ASME)
- Materials Research Society (MRS)
- Sigma Xi (ΣX)

Service

- NSF Review Panelist
- DoE Review Panelist
- Israeli Ministry of Science and Technology Review Panelist
- University of Houston Internal Proposal Review Panelist
- Co-advisor of WVU's Materials Research Society Student Chapter

- Co-advisor of WVU's Materials Advantage Student Chapter
- Maryland Industrial Partnership Program Proposal Reviewer
- West Virginia Clinical and Translational Science Institute Proposal Reviewer
- 2015, 2018 Intel Science and Engineering Fair Judge, Pittsburgh, PA
- 2014-2020, West Virginia State Science and Engineering Fair Judge, Fairmont, WV
- 2021, Mentor to Junior Tenure Track Faculty at Statler College WVU through Division of Diversity, Equity, and Inclusion

Publications

(* Signifies Undergraduate Student Researcher)

Journal (in print)

- 1) **K. A. Sierros**, S. N. Kukureka, "Tribological Investigation of Thin Polyester Substrates for Displays", *Wear*, 263, 992-999 (2007)
- 2) **K. A. Sierros**, N. J. Morris*, J. S. Abell, D. R. Cairns, S. N. Kukureka, Mechanical Integrity of Hybrid Components used in Flexible Optoelectronic Devices", *Materials Research Society Symposium Proceedings*, 1075, J04-04 (2008)
- 3) M. Shafran, **K. A. Sierros**, W. W. Huebsch, D. R. Cairns, "Electrically Switchable Liquid Crystal Polymer Rod Actuators" *Materials Research Society Symposium Proceedings*, 1096, FF03-07 (2008)
- 4) **K. A. Sierros**, N. J. Morris*, K. Ramji, D. R. Cairns, "Stress Corrosion Cracking of ITO Coated PET for Flexible Optoelectronic Devices", *Thin Solid Films*, 517, 2590-2595 (2009)
- 5) **K. A. Sierros**, N. J. Morris*, S. N. Kukureka, D. R. Cairns, "Dry and Wet Sliding Wear of ITO Coated PET Components used in Flexible Optoelectronic Applications", *Wear*, 267, 625-631 (2009)
- 6) **K. A. Sierros**, S. N. Kukureka, "Mechanical Integrity of Touch Screen Components", *Journal of The Society of Information Display*, 17, 947-952 (2009)
- 7) **K. A. Sierros**, D. R. Cairns, J. S. Abell, S. N. Kukureka, "Pulsed Laser Deposition of ITO films on Flexible PEN Substrates at Room Temperature", *Thin Solid Films*, 518, 2623-2627 (2010)
- 8) D. R. Cairns, M. S. Shafran, **K. A. Sierros**, W. W. Huebsch, A. J. Kessman, "Stimulus Responsive Fluidic Dispersions of Rod Shaped Liquid Crystal Colloids", *Materials Letters*, 64, 1133-1136 (2010)
- 9) **K. A. Sierros**, D. S. Hecht, D. A. Banerjee*, N. J. Morris, L. Hu, G. Irvin, R. S. Lee, D. R. Cairns, "Durable Transparent Carbon Nanotube Films for Flexible Device Components", *Thin Solid Films*, 518, 6977-6983 (2010)
- 10) **K. A. Sierros**, D. A. Banerjee*, N. J. Morris, D. R. Cairns, I. Kortidis, G. Kiriakidis, "Mechanical Properties of ZnO Thin Films Deposited on Polyester Substrates used in Flexible Device Applications", *Thin Solid Films*, 519, 325-330 (2010)
- 11) D. S. Hecht, **K. A. Sierros**, R. S. Lee, C. Ladous, C. Niu, D. A. Banerjee*, D. R. Cairns, "Transparent Conductive Carbon Nanotube Films Directly Coated on Flexible and Rigid Polycarbonate", *Journal of The Society of Information Display*, 19, 157-162 (2011)

- 12) **K. A. Sierros**, S. Cronin*, T. S. Bejital, A. J. Kessman, S. N. Kukureka, D. R. Cairns, "Tribocorrosion of Ag and Ag-Alloy ITO Multilayers used in Solar Energy Applications", *Wear*, 271, 1438-1441 (2011)
- 13) **K. A. Sierros**, A. J. Kessman, R. Nair, N. X. Randall, D. R. Cairns, "Spherical Indentation and Scratch Durability Studies of Transparent Conducting Layers on Polymer Substrates", *Thin Solid Films*, 520, 424-429 (2011)
- 14) A. J. Kessman, E. E. DeFusco, A. W. Hoover*, **K. A. Sierros**, D. R. Cairns, "Sustained Protection for Transparent Electrodes in Touch Panels and Smart Windows: Template Assisted Encapsulation of Fluorinated Silanes in Sol-Gel Silica Films for Sustained Hydrophobic-Oleophobic Functionality", *Materials Research Society Symposium Proceedings*, 1400, S05-03 (2012)
- 15) T. S. Bejital, K. Ramji, A. J. Kessman, **K. A. Sierros**, D. R. Cairns, "Corrosion of an Amorphous Indium Tin Oxide Film on Polyethylene Terephthalate at Low Concentrations of Acrylic Acid", *Materials Chemistry and Physics*, 132, 395-401 (2012)
- 16) A. J. Kessman, E. E. DeFusco, A. W. Hoover*, **K. A. Sierros**, D. R. Cairns, "Structural, Mechanical, and Tribological Properties of Fluorinated Mesoporous Silica Films: Effect of Functional Moiety and Surfactant Template Concentrations", *Thin Solid Films*, 520, 3896-3903 (2012)
- 17) T. S. Bejital, D. Compton*, **K. A. Sierros**, D. R. Cairns, S. N. Kukureka, "Electromechanical Reliability of Flexible Transparent Electrodes During and After Exposure to Acrylic Acid" *Thin Solid Films*, 528, 229-236 (2013)
- 18) G. A. Potoczny, T. S. Bejital, J. S. Abell, **K.A. Sierros**, D. R. Cairns, S. N. Kukureka, "Flexibility and Electrical Stability of Polyester-Based Device Electrodes under Monotonic and Cyclic Buckling Conditions" *Thin Solid Films*, 528, 205-212 (2013)
- 19) T. S. Bejital, N. J. Morris, D. R. Cairns, **K. A. Sierros**, "Controlled Buckling Behavior of Patterned Oxide Structures on Compliant Substrates for Flexible Electronics" *Thin Solid Films* 549, 268-275 (2013)
- 20) T. S. Bejital, N. J. Morris, S. D. Cronin*, D. R. Cairns, **K. A. Sierros**, "Mechano-Chemical Degradation of Flexible Electrodes for Optoelectronic Device Applications" *Thin Solid Films* 549, 251-257 (2013)
- 21) S. D. Cronin, K. Sabolsky, E. M. Sabolsky, **K. A. Sierros**, "Dip Pen Nanolithography and Transfer of ZnO patterns on Plastics for Large-Area Flexible Optoelectronic Applications" *Thin Solid Films* 552, 50-55 (2014)
- 22) G. Kiriakidis, I. Kortidis, S. D. Cronin, N. J. Morris, D. R. Cairns, **K. A. Sierros**, "Tribological Investigation of Piezoelectric ZnO Films for Rolling Contact Based Energy Harvesting and Sensing Applications" *Thin Solid Films* 555, 68-75 (2014)

- 23) D. A. Banerjee, A. J. Kessman, D. R. Cairns, **K. A. Sierros**, "Tribology of Silica Nanoparticle-reinforced, Hydrophobic Sol-Gel Composite Coatings" *Surface and Coatings Technology* 260, 214-219 (2014)
- 24) D. A. Banerjee, **K. A. Sierros**, "Direct Writing of Hydrophobic Sol-Gel Patterns" *Materials Research Society Symposium Proceedings* 1804, 15-2137511 (2015)
- 25) M. A. Torres Arango, A. M. Cokeley*, J. J. Beard*, **K. A. Sierros**, "Direct Writing and Electro-Mechanical Characterization of Ag Micro-Patterns on Polymer Substrates for Flexible Electronics" *Thin Solid Films* 596, 167-173 (2015)
- 26) D. W. Mohammed, R. Waddingham, A. J. Flewitt, **K. A. Sierros**, J. Bowen, S. N. Kukureka, "Mechanical Properties of Amorphous IGZO Thin Films on Compliant Substrates for Flexible Optoelectronic Devices" *Thin Solid Films* 594, 197-204 (2015)
- 27) **K. A. Sierros**, Sai Suvineeth Ramayanam, C. D. Stinespring, "Nanotribological Properties of Few Layer Graphene Surfaces, Prepared by Bottom-up and Top-down Methods, in Ambient Air and Liquid Environments" *Journal of Materials Research* 31, 1924-1931 (2016)
- 28) M. A. Torres Arango, A. S. Valença de Andrade*, D. T. Cipollone*, L. O. Grant*, D. Korakakis, **K. A. Sierros**, "Direct Writing of TiO₂ Patterns on Flexible Substrates: Ink Synthesis, Processing, and Microstructural Properties" *ACS Applied Materials and Interfaces* 8, 24659 – 24670 (2016)
- 29) A. Wagner, R. Eldawud, A. White, S. Argawal, T. A. Stueckle, **K. A. Sierros**, Y. Rojanasakul, R. K. Gupta, C. Z. Dinu, "Toxicity Evaluations of Nanoclays and Thermally Degraded Byproducts Through Spectroscopical and Microscopical Approaches" *Biochimica et Biophysica Acta (BBA) – General Subjects* 1861, 3406 – 3415 (2017)
- 30) M. A. Torres Arango, D. T. Cipollone*, L. O. Grant*, D. Korakakis, **K. A. Sierros**, "Continuous-flow Direct Writing of Hybrid TiO₂ Flexible Photo-electrodes: Processing, Microstructure and Functionality Interrelations" *MRS Advances* 2, 1021 - 1028 (2017)
- 31) Z. Wang, **K. A. Sierros**, M. S. Seehra, D. Korakakis, "Development of Indigo-based Nonvolatile Write-Once-Read-Many-Times Memory Device", *Materials Letters* 206, 128-131 (2017)
- 32) A. Wagner, A. White, T. A. Stueckle, D. Banerjee, **K. A. Sierros**, Y. Rojanasakul, S. Agarwal, R. K. Gupta, C. Z. Dinu, "Early Assessment and Correlations of Nanoclay's Toxicity to their Physical and Chemical Properties", *ACS Applied Materials and Interfaces* 9, 32323-32335 (2017)
- 33) M. A. Torres Arango, O. A. Abidakun, D. Korakakis, **K. A. Sierros**, "Tuning the Crystalline Microstructure of Al-Doped ZnO Using Direct Ink Writing", *Flexible and Printed Electronics* 2, 035006 (2017)

- 34) M. A. Torres Arango, D. Kwakye – Ackah, S. Argawal, R. K. Gupta, **K. A. Sierros**, “Environment Friendly Engineering and 3D Printing of TiO₂ Hierarchical Mesoporous Cellular Architectures”, *ACS Sustainable Chemistry and Engineering* 5, 10421-10429 (2017)
- 35) D. W. Mohammed, R. B. Ameen, **K. A. Sierros**, J. Bowen, S. N. Kukureka, “Twisting Fatigue in Multilayer Films of Ag-alloy with Indium Tin Oxide on Polyethylene Terephthalate for Flexible Electronics Devices”, *Thin Solid Films* 645, 241-252 (2018)
- 36) T. A. Stueckle, D. C. Davidson, R. Derk, T. G. Kornberg, L. Battelli, S. Friend, M. Orandle, A. Wagner, C. Z. Dinu, **K. A. Sierros**, S. Agarwal, R. K. Gupta, Y. Rojanasakul, D. W. Porter, L. Rojanasakul “Short-term Pulmonary Toxicity Assessment of pre- and post-Incinerated Organomodified Nanoclay in Mice” *ACS Nano* 12, 2292-2310 (2018)
- 37) M. A. Torres Arango, N. J. Morris, **K. A. Sierros** “Direct Writing and Controlling of Hierarchical Functional Metal-Oxides: Bio-inspired Multiphase Processing, 3D printing and Hierarchical Cellular Structuring” (Invited Article) *Journal of The Minerals, Metals & Materials Society (TMS)* 70, 1823-1829 (2018)
- 38) D. R. Cairns, R. Curtis, **K. A. Sierros**, J. J. Bolyard “Taking Professional Development from 2D to 3D: Design-based Learning, 2D Modelling, and 3D Fabrication for Authentic Standards-aligned Lesson Plans” *Interdisciplinary Journal of Problem-Based Learning* 12, 15pp (2018)
- 39) Q. Liu, J. Chapman, A. Huang, K. C. Williams*, A. Wagner, N. Garapati, **K. A. Sierros**, C. Z. Dinu “User-tailored Metal Organic Frameworks as Supports for Carbonic Anhydrase” *ACS Applied Materials and Interfaces* 10, 41236-41337 (2018)
- 40) H. A. Loh, A. R. Graves, C. D. Stinespring, **K. A. Sierros** “Direct-ink Writing of Graphene-based Solutions for Gas Sensing” *ACS Applied Nano Materials* 2, 4104-4112 (2019)
- 41) A. Chang, Y. He, M. A. Torres Arango, M. Wang, Y. Ren, Z. Feng, C. -H Chang, **K. A. Sierros**, “On the Unusual Amber Coloration of Nanoporous Sol-Gel Processed Al-doped Silica Glass: An Experimental Study” *Scientific Reports* 9, 12474 (2019)
- 42) P. V. Vijay, P. R. Soti, D. A. Banerjee, **K. A. Sierros**, “Abrasion Resistance of Polymer and Polymer-Ceramic Composite Coatings for Steel Hydraulic Structures” *Journal of Coatings Technology and Research* 17, 401-411 (2019)
- 43) G. J. Cordonier, **K. A. Sierros**, “Unconventional Application of Direct Ink Writing: Surface Force-Driven Patterning of Low Viscosity Inks” *ACS Applied Materials and Interfaces* 12, 15875-15884 (2020)
- 44) D. Cipollone, H. Yang, F. Yang, J. Bright, B. Liu, N. Winch, N. Wu, and **K. A. Sierros**, “3D Printing of an Anode Scaffold for Lithium Batteries Guided by

- Mixture Design-based Sequential Learning” *Journal of Materials Processing Technology* 295, 117159 (2021)
- 45) K. V. I. Sivaneri, P. D. Pozo, K. Sabolsky, E. M. Sabolsky, **K. A. Sierros**, and D. S. Reynolds, “All-ceramic LC Resonator for Chipless Temperature Sensing within High Temperature Systems” *IEEE Sensors Journal* 21, 19771-19779 (2021)
 - 46) K. V. I. Sivaneri, K. Sabolsky, L. Rendinger, J. Meyer, H. Palakurthi, E. M. Sabolsky, **K. A. Sierros**, and D. Reynolds, “Micromachined Ceramic-based Chipless LC Resonator for High-Temperature Wireless Sensing Application in Harsh Environments” *Engineering Research Express* 3, 035043 (2021)
 - 47) H. A. Loh, C. Marchi, L. Magagnin, and **K. A. Sierros**, “Graphene Flake Self-Assembly Enhancement via Stretchable Platforms and External Mechanical Stimuli” *ACS Omega* 6, 30607-30617 (2021)
 - 48) G. Cordonier, C. Sarafati*, S. Mays*, L. Thackery*, E. Gemmen*, S. Cyphert*, M. Brown*, J. Napollilo*, S. Toney*, H. Moore*, J. Kuhlman, and **K. A. Sierros**, “Direct Foam Writing in Microgravity” *NPJ Microgravity* 7, 1-5 (2021)
 - 49) K. V. I. Sivaneri, J. A. Caswell, P. D. Pozo, K. Sabolsky, **K. A. Sierros**, D. S. Reynolds, E. M. Sabolsky, “All-ceramic Passive Wireless Temperature Sensor Realized by Tin-doped Indium Oxide (ITO) Electrodes for Harsh Environment Applications” *Sensors* 22, 2165 (2022)
 - 50) C. Marchi, H. A. Loh, F. Lissandrello, A. Lucotti, **K. A. Sierros**, L. Magagnin, “Biocompatible Rapid Few-Layers-Graphene Synthesis in Aqueous Lignin Solutions” *Carbon Trends* 7, 100169 (2022)
 - 51) D. Cipollone, J. A. Mena, K. Sabolsky, E. M. Sabolsky, **K. A. Sierros**, Coaxial Ceramic Direct Ink Writing on Heterogeneous and Rough Surfaces: Investigation of Core-Shell interactions” *ACS Applied Materials and Interfaces* 14, 24897-24907 (2022)
 - 52) V. V. K. Doddapaneni, K. Lee, H. E. Aysal, B. K. Paul, S. Pasebani, **K. A. Sierros**, C. E. Okwudire, C. -H. Chang, “A Review on Progress, Challenges, and Prospects of Material Jetting of Copper and Tungsten” *Nanomaterials* 13 (16), 2303 (2023)
 - 53) G. J. Cordonier, K. P. S. Piash, R. Erwin*, M. Ferrebee*, O. Sanyal, **K. A. Sierros**, “Unconventional Direct Ink Writing of Polyelectrolyte Films” *MRS Bulletin* 48, 720 (2023) (invited article)
 - 54) G. J. Cordonier, K. Anderson*, R. Butts*, R. O’ Hara*, R. Garneau*, N. Wimer*, J. Kuhlman, **K. A. Sierros**, “Direct Writing of a Titania Foam in Microgravity for Photocatalytic Applications” *ACS Applied Materials and Interfaces* 15 (40), 47745-47753 (2023)
 - 55) B. Leonard, H. A. Loh, D. Lu, E. Ogbuaji, I. C. Escobar, **K. A. Sierros**, O. Sanyal, “Sustainable Additive Manufacturing of Polysulfone Membranes for Liquid Separations” *Journal of Physics: Energy* 6, 015021 (2024)

- 56) H. Loh, S. Gyawali, **K. A. Sierros**, A. D. Bristow, "Morphology-dependent Terahertz Electrical Conductivity of Liquid-exfoliated Graphite" *Optical Materials Express* 14 (2), 505-518 (2024)
- 57) X. Chen, P. Gao, W. Li, N. A. Thieu, Z. M. Grady, N. G. Akhmedov, **K. A. Sierros**, M. Velayutham, V. V. Khramtsov, D. M. Reed, X. Li, X. Liu, "Stabilizing Zn Anodes by Molecular Interface Engineering with Amphiphilic Triblock Copolymer" *ACS Energy Letters* 9 (4), 1654-1665 (2024)
- 58) J. A. Mena, V. Mendoza-Estrada, E. M. Sabolsky, **K. A. Sierros**, K. Sabolsky, R. Gonzalez-Hernandez, K. Sivaneri V. I., "Exploring the Impact of Multivalent Substitution on High-Temperature Electrical Conductivity in Doped Lanthanum Chromite Perovskites: An Experimental and Ab-initio Study" *Journal of the European Ceramic Society* 44 (12), 7040-7058 (2024)
- 59) V. V. K. Doddapaneni, C. Song, N. Cheng, I. Camp, J. A. Dhas, A. Chang, C. Pan, B. K. Paul, S. Pasebani, Z. Feng, **K. A. Sierros**, C.-H. Chang, "Beyond Solution-based Printing: Unveiling Innovations and Advancements in Solvent-free Printing Technologies" *Advanced Functional Materials* 2423498 (2025) Invited Perspective
- 60) M. A. Shaw, M. Poncelet, D. A. Banerjee, **K. A. Sierros**, B. Driesschaert, "Evaluation of Mesoporous Silica Nanoparticles as Carriers of Triarylmethyl Radical Spin Probes for EPR Oximetry" *The Journal of Physical Chemistry B* 129 (6), 1846-1854 (2025)
- 61) E. M. Sabolsky, J. A. Mena, V. Mendoza-Estrada, R. Gonzalez-Hernandez, K. Sabolsky, **K. A. Sierros**, "Doping Effects on Multivalence States, Electronic Structure, and Optical Bandgap in LaCrO_3 under Varied Atmospheres: An Integrated Experimental and Density Functional Theory Study" *ACS Applied Electronic Materials* 7 (6), 2515-2528 (2025)
- 62) J. A. Mena, K. Sabolsky, A. A. Abrahamian, **K. A. Sierros**, E. M. Sabolsky, "Thermoelectric Properties and Stability Characterization of Doped- $\text{LaCrO}_3/\text{Al}_2\text{O}_3$ Composites for High-Temperature Thermocouples" *Sensors and Actuators A: Physical* 389, 116569 (2025)
- 63) D. W. Mohammed, R. B. Ameen, J. Bowen, **K. A. Sierros**, S. N. Kukureka, "Durability of ITO/Ag-alloy/ITO Films on PET Substrate Under Extended Bending Stress at Various Temperatures and Humidity Conditions" *Advances in Materials Science* 25 (2), 36-51 (2025)
- 64) E. Demirkal, D. Banerjee, R. Barto*, K. Sabolsky, **K. A. Sierros**, E. M. Sabolsky, "3D Printing by Direct Ink Writing (DIW) of UV-Curable Elastomers with Embedded Sensors for Soft-Robotic and Flexible Electronic Applications" *Flexible and Printed Electronics* 10 (3), 035001 (2025)
- 65) H. E. Aysal, E. M. Sosa, R. K. Gupta, B. Paul, C. -H. Chang, **K. A. Sierros**, "Binder Rheology and Printability in Direct Ink Writing: A Framework for

Hierarchically Porous Structures" *Journal of Materials Processing Technology* 344, 119033 (2025)

- 66) B. Leonard, K. P. S. Piash, P. Perez-Vega, **K. A. Sierros**, O. Sanyal, "Incorporation of Rheological Analyses into Manufacturing of Direct Written Membranes" *Current Opinion in Chemical Engineering* 49, 101168 (2025)

Books/Book Chapters

- 67) **K. A. Sierros**, S. N. Kukureka, "Tribological Aspects of Polymer-Based Flexible Electronic Materials: From Manufacturing to End-Use Applications" Chapter 22 in *The Handbook of Polymer Tribology*, pp. 743-758, Edited by Sujeet Kumar Sinha, World Scientific, June 2018, ISBN: 978-981-3227-78-1
- 68) H. Loh, **K. A. Sierros**, "Additive Manufacturing of Graphene-based Sensors for Environmental Applications" pp. 433-469 Chapter 15 in *Handbook of Water Sensors*, Edited by Junhong Chen and Matthew Tirell, World Scientific, 2023, https://doi.org/10.1142/9789811245770_0015
- 69) N. Winch, D. R. Cairns, **K. A. Sierros**, "Flexible Battery Fundamentals" pp. 255-270 Chapter 13 in *Flexible Flat Panel Displays 2nd Ed.*, Edited by D. R. Cairns, D. J. Broer, G. P. Crawford, John Wiley, 2023, <https://doi.org/10.1002/9781118751077.ch18>
- 70) **K. A. Sierros**, D. R. Cairns, "Direct Ink Writing of Touch Sensors and Displays: Current developments and future perspectives" pp. 337-350 Chapter 18 in *Flexible Flat Panel Displays 2nd Ed.*, Edited by D. R. Cairns, D. J. Broer, G. P. Crawford, John Wiley, 2023, <https://doi.org/10.1002/9781118751077.ch18>

Patents and Patent Applications

- 71) D. R. Cairns, W. W. Huebsch, **K. A. Sierros**, M. S. Shafran, "Stimulus Responsive Nanoparticles" US 8,362,760, Jan. 2013
- 72) D. R. Cairns, W. W. Huebsch, **K. A. Sierros**, M. S. Shafran, "Stimulus Responsive Nanoparticles" US 9035644 B2, May 2015
- 73) D. R. Cairns, W. W. Huebsch, **K. A. Sierros**, M. S. Shafran, "Stimulus Responsive Nanoparticles" US 9,658,251, May 2017
- 74) M. A. T. Arango, **K. A. Sierros**, "Hierarchical Cellular Mesoporous Metal-Oxide Composites" US Patent App. 16/432,306
- 75) B. Leonard, H. Loh, K. A. Sierros, O. Sanyal, "Methods to Fabricate Membranes using Additive Manufacturing" WO2025075494A1, Oct. 2025

Conference (oral, poster)

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- 100) A. M. Cokeley*, M. A. Torres Arango, J. J. Beard*, **K. A. Sierros**, "Optimization of Ag Nanoparticles Yield for Metallic Inks" Summer Undergraduate Research Symposium, WVU, Thursday, July 23, 2015
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- 106) M. A. Torres Arango, **K. A. Sierros**, "Additive Manufacturing of Ag Micro-Patterns for Flexible Energy Devices", 2015 Trans Tech Conference, Nov. 5th, Morgantown, WV
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- 110) L. O. Grant*, M. A. Torres Arango, **K. A. Sierros**, "Direct Writing of Functional Materials for Use in Flexible Electronics" KY-WV –LSAMP NSF, University of Kentucky, 2016
- 111) M. A. Torres Arango, **K.A. Sierros**, "3D Printing of Functional Optoelectronic Materials and Devices at FEST Lab" WV Trans Tech Conference, Oct 26th, 2016, Morgantown, WV
- 112) J. J. Beard*, **K. A. Sierros**, "Additive Manufacturing of Conductive Grids for Flexible Electronics" NASA S.P.A.C.E. Day, April 16th, 2016, Fairmont State University, WV
- 113) L. O. Grant*, D. T. Cipollone*, M. A. Torres Arango, **K.A. Sierros**, "TiO₂ Foam for Direct Writing Thin Structures" WVU 1st Annual Undergraduate Spring Symposium, April 8, 2017, Morgantown, WV
- 114) D. T. Cipollone*, L. O. Grant*, M. A. Torres Arango, **K.A. Sierros**, "Direct Writing of Titanium Dioxide Photoanodes for Dye Sensitized Solar Cells" WVU 1st Annual Undergraduate Spring Symposium, April 8, 2017, Morgantown, WV
- 115) J. F. Cordonier, D. Bhattacharayya, M. A. Torres Arango, **K. A. Sierros**, R. K. Gupta, "Modelling and Validation of a Direct-Write 3D Printed Track" ANTEC 2017, May 8-10, Anaheim, CA
- 116) A. Wagner, A. White, T. A. Stueckle, D. Banerjee, **K. A. Sierros**, Y. Rojanasakul, R. K. Gupta, C. Z. Dinu, "Early Assessment and Correlations of Nanoclay's Toxicity to their Physical and Chemical Properties" 31st Annual Meeting of the Allegheny-Erie Society of Toxicology Regional Chapter, May 17-18, 2017, Morgantown, WV
- 117) M. A. Torres Arango, **K. A. Sierros**, "New Paradigms on Materials Synthesis and Additive Manufacturing of Flexible Electronics for Energy Applications" NanoTech 2017, Washington DC, Printed and Flexible Electronics, vol. 4, 2017, pp. 178-181
- 118) M. A. Torres Arango, **K. A. Sierros**, "Bio-inspired multiphase processing, 3D printing and hierarchical structuring of metal-oxide cellular frameworks" MRS Fall Meeting, BM02, 2017, Boston, MA
- 119) M. A. Torres Arango, **K. A. Sierros**, "Pushing the Boundaries of Metal-Oxide Materials Microstructuring through Additive Manufacturing" Symposium MAO4: Advances in Additive Manufacturing – Materials Processes, Devices, MRS Spring Meeting, 2018, Phoenix, Az
- 120) D. Cipollone, M. A. Torres Arango, **K. A. Sierros**, "Direct Ink Writing of Nature Inspired Hierarchical Metal-Oxide Hydrocolloids" Symposium MAO4:

Advances in Additive Manufacturing – Materials Processes, Devices, MRS Spring Meeting, 2018, Phoenix, Az

- 121) G. Cordonier, N. Stroger*, M. A. Torres Arango, **K. A. Sierros**, “Surface Force-Driven Direct Ink Writing of titanium Dioxide for Porous Micro to Nanoscale Film Fabrication” Symposium MAO4: Advances in Additive Manufacturing – Materials Processes, Devices, MRS Spring Meeting, 2018, Phoenix, Az
- 122) A. Chang, Y. He, M. A. Torres Arango, R. Malhotra, C. -H. Chang, **K. A. Sierros**, “Novel Approaches towards Creating Colored Nanoporous Sol-Gel Glasses” Glass and Optical Materials Division (GOMD) Meeting, The American Ceramics Society, San Antonio, TX, May 20-24, 2018
- 123) C. -H. Chang, Y. He, A. Chang, M. A. Torres Arango, R. Malhotra, **K. A. Sierros**, “Fabrication of Micro- and Nanostructured Materials using Microreactor – Assisted Chemical Process” Glass and Optical Materials Division (GOMD) Meeting, The American Ceramics Society, San Antonio, TX, May 20-24, 2018 – Invited Oral
- 124) K. Sabolsky, G. A. Yakaboylu, **K. A. Sierros**, E. M. Sabolsky, M. R. Comparetto, D. S. Reynolds, J. Bogan, M. Raughley, J. Sayre, “High-Temperature Ceramic Sensors for Assessing Refractory and Component Conditions” 14th International Ceramics Congress, Perugia, Italy, June 4-14, 2018
- 125) C. -H. Chang, A. Chang, Y. He, M. A. Torres Arango, R. Malhotra, **K. A. Sierros**, Z. Feng, M. Wang, Y. Ren, “Fabrication and Characterization of Colored Nanoporous Sol-Gel Glasses” IMECE 2018, Pittsburgh, Pa, November 9-15, 2018
- 126) K. Sivaneri, K. Sabolsky, E. M. Sabolsky, H. Palakurthi, D. S. Reynolds, **K. A. Sierros**, “Thick Film Electroceramic Composites for Harsh-Environment Sensor Applications” MS&T 2018, Columbus, OH, October 14-18, 2018
- 127) K. Sabolsky, G. A. Yakaboylu, K. Sivaneri, B. Buzzo, M. Comparetto, D. S. Reynolds, **K. A. Sierros**, E. M. Sabolsky, J. Bogan, M. Raughley, “Temperature and Spallation Sensors Based on Oxide and Oxide/Silicide Composites for High-temperature System Monitoring” 233rd ECS Meeting, Seattle, WA, May 13-17, 2018
- 128) M. A. Torres Arango, D. T. Cipollone, **K. A. Sierros**, “Multifunctional Foam Synthesis: Paradigm Shift Towards Next Generation 3D Printable Composites” MRS Fall Meeting, Boston, Ma, November 25-30, 2018
- 129) C. -H. Chang, R. Malhotra, **K. A. Sierros**, “Develop Solution-based, Direct-printing Processes of Inorganic Semiconductors for Electronics and Energy Applications” TMS 2019, San Antonio, TX, March 10-14, 2019 (invited oral)

- 130) M. A. Torres, **K. A. Sierros**, "Ink Design for Continuous Direct Writing: Controlling Complex Metal-Oxide Mesostructures" TMS 2019, San Antonio, TX, March 10-14, 2019 (invited oral)
- 131) G. J. Cordonier, J. Bright, N. Q. Wu, **K. A. Sierros**, "Surface Force-driven Direct Ink Writing of Titanium Dioxide Thin Films for Photovoltaics" TMS 2019, San Antonio, TX, March 10-14, 2019
- 132) H. A. Loh, A. R. Graves, C. D. Stinespring, **K. A. Sierros**, "Advances in 2D Material Processing and Application: A Direct Ink Writing Approach Employing Graphene-Based Inks for Facile Gas Sensor Patterning and Fabrication" TMS 2019, San Antonio, TX, March 10-14, 2019
- 133) K. Sivaneri, E. M. Sabolsky, K. Sabolsky, L. Redinger, H. Palakurthi, D. S. Reynolds, **K. A. Sierros**, "Embedded Ceramic-based Passive Wireless Sensors for Harsh-Environment Applications" 235th ECS Meeting, Dallas, TX, May 26-30, 2019
- 134) K. Sivaneri, L. Redinger, K. Sabolsky, E. M. Sabolsky, **K. A. Sierros**, H. Palakurthi, D. S. Reynolds, "Electroc ceramic-based Passive Wireless Sensors for Monitoring High Temperature Systems" MS&T 2019, Portland, OR, Sep 29-Oct 3, 2019
- 135) A. Wagner, A. White, M. Tang, S. Agarwal, T. Stueckle, Y. Rojanasakul, R. Gupta, **K. A. Sierros**, C. Z. Dinu, "Toxicity Evaluations of Nanoclay Systems Through their Life Cycle" Tech Connect World Innovation Conference, Boston, MA, June 17-19, 2019
- 136) N. P. Winch, D. T. Cipollone, H. Yang, F. Yang, **K. A. Sierros**, and N. Q. Wu, "3D Printed Electrodes for Solid-state Lithium Batteries" ECS Meeting Abstracts, 2, 2020, p. 344
- 137) H. A. Loh, and **K. A. Sierros**, "Controlled Modulation of Gas Sensing in Printed Graphene: Nanoparticle Nucleation and Defect Engineering in Exfoliated Graphene Flakes" TMS 2020, Feb. 23-27, 2020, San Diego, CA
- 138) K. Sivaneri V. I., G. Yakaboylu, P. D. Pozo, M. Thomas, R. Vozar, K. Sabolsky, E. Sabolsky, **K. A. Sierros**, and D. Reynolds, "Evaluation of Electroceramic-based LC Resonator for Monitoring High Temperature Systems" MS&T 20 (virtual), Nov. 2-6, 2020
- 139) J. Mena, K. Sivaneri V. I., G. Yakaboylu, E. Sabolsky, K. Sabolsky, and **K. A. Sierros**, "Evaluation of Doped-LaCrO₃ Ceramics for High Temperature Sensor Applications" MS&T 20 (virtual), Nov. 2-6, 2020
- 140) K. Sivaneri V. I., D. T. Cipollone, K. Sabolsky, E. Sabolsky, **K. A. Sierros**, and D. Reynolds, "Additive Manufacturing of Miniaturized RFID Tag using Electroceramic Materials for High Temperature Wireless Sensing Applications" MS&T 20 (virtual), Nov. 2-6, 2020

- 141) D. Cipollone, J. Mena, **K. A. Sierros**, and E. Sabolsky, "Out of the Lab: 3D Printing on Non-ideal Surfaces" MS&T 21, Oct. 17-20, 2021, Columbus, OH
- 142) Z. Yang, J. Mena, J. Conte, B. Jordan, K. Sabolsky, **K. A. Sierros**, and E. Sabolsky, "Characterization and High Temperature Electrical Properties of Brazed Joints of La_{0.8}Sr_{0.2}CrO₃ with Nickel and Nickel Alloys" MS&T 21, Oct. 17-20, 2021, Columbus, OH
- 143) J. Mena, E. Sabolsky, K. Sabolsky, **K. A. Sierros**, and K. Sivaneri, "Electrical, Microstructural and Thermomechanical Properties of Doped LaCrO₃ Ceramics for High Temperature Electronics and Sensing Applications" MS&T 21, Oct. 17-20, 2021, Columbus, OH
- 144) K. Sivaneri, M. Barre, Z. Lynch, E. Ciftyurek, K. Sabolsky, E. Sabolsky, **K. A. Sierros**, and D. Reynolds, "Evaluation of High Temperature Planar Passive Wireless Sensor Fabricated by Stereolithography Process" MS&T 21, Oct. 17-20, 2021, Columbus, OH
- 145) A. Kakar, D. Banerjee, E. Sabolsky, and **K. A. Sierros**, "Direct Writing of Embedded Flexible Sensors for Strain and Temperature Monitoring for Stretchable Applications" MS&T 21, Oct. 17-20, 2021, Columbus, OH
- 146) H. Loh, A. D. Bristow, and **K. A. Sierros**, "Probing Carrier Dynamics in Liquid Phase Exfoliated Graphite/Graphene via THz Spectroscopy" MRS Fall Meeting 2021 (virtual) Dec. 6-8, 2021
- 147) A. Kakar, E. M. Sabolsky, D. Banerjee, and **K. A. Sierros**, "Failure Mechanisms of Embedded Flexible Strain Sensors for Soft Robotics" MRS Fall Meeting 2021 (virtual) Dec. 6-8, 2021
- 148) J. Mena, E. M. Sabolsky, **K. A. Sierros**, K. Sabolsky, D. Cipollone, V. Mendoza, A. Abrahamian, "High Temperature Thick Film Sensor Development based on Doped Lanthanum Chromites Refractory Semiconductors Materials" MS&T 22, Oct. 12, 2022, Pittsburgh, PA
- 149) A. Kakar, D. Banerjee, E. M. Sabolsky, **K. A. Sierros**, "Direct Ink Writing of Multi-layered Sensors Embedded using 3D Printing for Soft Robotics" MS&T 22, Oct. 11, 2022, Pittsburgh, PA
- 150) J. Mena, K. Sabolsky, A. Abrahamian, D. Cipollone, **K. A. Sierros**, E. M. Sabolsky, V. Mendoza-Estrada, "High Temperature Thick Film Sensor Development based on Doped Lanthanum Chromites Refractory Semiconductors Materials" ICMSN 2022, July 1, 2022, London, UK
- 151) G. J. Cordonier, K. Casto*, R. O'Hara*, S. Toney*, K. Anderson*, L. England*, M. Brown*, H. Moore*, E. Gemmen*, J. Q. Napolillo*, S. Cyphert*, M. Howley*, M. Licata*, J. M. Kuhlman, **K. A. Sierros**, "Direct Writing and Spraying of Titanium Dioxide Foams in Microgravity" ISS R&D 2022, July 26, 2022, Washington DC

- 152) H. E. Aysal, B. Paul, C.-H. Chang, **K. A. Sierros**, "Mechanical Characterization of Strengthened Stainless Steel Alloys Fabricated via Direct Ink Writing" ACS Spring 2022, March 22, 2022, San Diego CA
- 153) KMP S. Piash, G. J. Cordonier, O. Sanyal, **K. A. Sierros**, "Printing Polyelectrolytes Layer-by-Layer: An Unconventional Surface Force-driven Direct Ink Writing" ACS Spring 2022, March 21, 2022, San Diego CA
- 154) B. Leonard, H. Loh, O. Sanyal, **K. A. Sierros**, "Developing Porous Polymer Membranes via Direct Ink Writing: A Polysulfone-based Case Study" ACS Spring 2022, March 21, 2022, San Diego CA
- 155) C. Marchi, H. Loh, F. Lissandrello, **K. A. Sierros**, L. Magagnin, « Rapid Exfoliation of Low-defectivity Graphene in Alkali Lignin Aqueous Media" TMS 2022, March 14, 2022, Anaheim CA
- 156) H. Loh, **K. A. Sierros**, "Electrohydrodynamic Printing as an Enabler for High Resolution Deposition: Direct and Hybrid Printing Strategies" TMS 2022, March 1, 2022, Anaheim CA
- 157) G. J. Cordonier, KMP S. Piash, O. Sanyal, **K. A. Sierros**, "Unconventional Low-viscosity Direct Ink Writing: Surface-force Driven Deposition of Polyelectrolyte-based Membranes" TMS 2022, March 1, 2022, Anaheim CA
- 158) S. Suri, **K. A. Sierros**, "3D printing of Nanostructures using Electrohydrodynamic Jet Printing for Surface Enhanced Raman Scattering (SERS) based Optical sensor" TMS 2022, February 28, 2022, Anaheim CA
- 159) A. Kakar, D. Banerjee, E. M. Sabolsky, **K. A. Sierros**, "Controlled Embedding of Multidimensional Flexible Sensors using Direct Ink Writing" TMS 2022, February 28, 2022, Anaheim CA
- 160) J. Burke, D. Banerjee, D. Cipollone, H. Mei, C. -H. Chang, E. M. Sabolsky, **K. A. Sierros**, "Coaxial Core-Shell Direct Ink Writing of Conductive Elastomeric Fibers" TMS 2022, February 28, 2022, Anaheim CA
- 161) N. Winch, H. Loh, D. Cipollone, S. Suri, H. E. Aysal, D. Banerjee, **K. A. Sierros**, "Utilizing Direct Ink Writing to Create Applications-specific Flexible and Stretchable Solid-state Lithium Battery Arrays" TMS 2022, February 28, 2022, Anaheim CA
- 162) H. E. Aysal, **K. A. Sierros**, B. Paul, C. -H. Chang, "Mechanical Characterization of Oxide Dispersed Stainless Steels via Direct Ink Writing" TMS 2022, February 28, 2022, Anaheim CA
- 163) J. Mena, K. Sabolsky, N. Winch, R. Barto, N. Voorstad, **K. A. Sierros**, E. Sabolsky, "Oxide Semiconductor Sensors for Monitoring Advanced Energy Conversion and Manufacturing Processes at High Temperature" XVII ECerS, Conference and Exhibition of the European Ceramic Society, 2-6 July, 2023, Lyon, France

- 164) E. Demirkal, **K. A. Sierros**, D. Banerjee, J. Burke, K. Sabolsky, E. Sabolsky, "Development of 3D Printable Highly Flexible Siloxane Elastomers for Direct Ink Writing (DIW) of Soft Robotic Actuators for Space Applications" ECS Meeting Abstracts, MA2023-01, 2723
- 165) N. Winch, J. Mena, M. Raughley, K. Sabolsky, E. Sabolsky, **K.A. Sierros**, "Direct Ink Writing of Semiconductive Oxide-based Sensors for High-temperature Applications" MS&T 23, October 1-4, 2023, Columbus, OH
- 166) E. Demirkal, **K.A. Sierros**, D. Banerjee, J. Burke, R. Barto, K. Sabolsky, E. Sabolsky, "3D Printing of Silicone-based Flexible Materials with Embedded Sensors for Soft Robotic Actuator Applications" MS&T 23, October 1-4, 2023, Columbus, OH
- 167) J. Mena, E. Sabolsky, **K. A. Sierros**, K. Sabolsky, R. Barto, N. Voorstad, "Doped Lanthanum Chromite-refractory Based Composites Sensors for High Temperature Monitoring in Harsh Environments Systems" MS&T 23, October 1-4, 2023, Columbus, OH
- 168) H. E. Aysal, B. Paul, C. -H. Chang, **K. A. Sierros**, "Controlling Microstructures and Modulus in Direct Ink Writing of Stainless Steel for Biomedical Applications" MRS Fall 2023, Nov. 27, 2023, Boston, MA SF01.03.30
- 169) KPS Piash, G.J. Cordonier, **K. A. Sierros**, O. Sanyal, "Unconventional Direct Ink Writing for Polyelectrolyte Multilayer Films" 2023 AIChE Annual Meeting, Nov. 5th – 10th, 2023, Orlando FL
- 170) B. Leonard, H. Loh, **K. A. Sierros**, O. Sanyal, "Developing Direct Ink Writing as a New Manufacturing Strategy for Polysulfone Membranes" 2023 AIChE Annual Meeting, Nov. 5th – 10th, 2023, Orlando FL
- 171) H. Loh, S. Gyawali, **K. A. Sierros**, A. D. Bristow, "Electrical Conductivity-morphology relationships of liquid-exfoliated graphite" Proceeding Vol. 12884, Ultrafast Phenomena and Nanophotonics XXVII; 128840B, 2024, SPIE OPTO, San Francisco, CA
- 172) H. Loh, **K. A. Sierros**, A. D. Bristow, "Electrical Conduction of Liquid-Exfoliated Nanographite Flakes as Components for Functional Inks" CLEO 2024 Technical Digest Series (Optica Publishing Group, 2024), paper JTu2A.54
- 173) E. Demirkal, **K. A. Sierros**, D. Banerjee, J. Herter, C. Wasielewski*, K. Sabolsky, E. M. Sabolsky, "Fabrication of Soft Robotic Sensors and Actuators via Direct Ink Writing of Dual-Curable Elastomers" MS&T 25, September 28-October 1, 2025, Columbus, OH
- 174) K. Tennant, A. Harper, N. Osborne, **K. A. Sierros**, T. Wuest, E. Sabolsky, W. Huebsch, C. Griffin, "Continuous Carbon Fiber-Reinforced Composites for Aerospace Applications Using Advanced Manufacturing Techniques" MS&T 25, September 28-October 1, 2025, Columbus, OH

- 175) V. Doddapaneni, C. Song, N. Cheng, I. Camp, J. Dhas, A. Chang, C. Pan, B. Paul, S. Pasebani, Z. Feng, **K. A. Sierros**, C.H. Chang, "Beyond solution based printing: Unveiling innovations and advancements in solvent-free printing technologies" TMS 2025 March 23-27, 2025, Las Vegas, NV
- 176) H. Low, A. Bristow, **K. A. Sierros**, "Probing intra- and inter-flake contributions to reduced electrical properties in percolated flake networks" TMS 2025 March 23-27, 2025, Las Vegas, NV