

**Konstantinos (Kostas) Sierros**  
**Curriculum Vitae – Fall 2018**

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# Konstantinos (Kostas) Sierros

## Personal Details

### Work

#### Associate Professor (Tenured)

West Virginia University (WVU)

Mechanical & Aerospace Eng.

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Evansdale Campus

Morgantown, WV, 26506

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### Home

416 Linden Street

South Park

Morgantown, WV, 26501

304 290 7375

## Education

**2006**      **PhD**    **Materials Science & Engineering**

The University of Birmingham (U.K.)

**2002**      **MS**      **Polymer Engineering & Science**

The University of Birmingham (U.K.)

**2001**      **BS**      **Mechanical Engineering**

University of Newcastle Upon Tyne (U.K.)

## Awards & Achievements

**2018**    Session Chair at 147<sup>th</sup> 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 5<sup>th</sup> Year in ASME's East Human Powered Vehicle Design Competition. Team Finished 4<sup>th</sup> 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 2<sup>nd</sup> Year in ASME's East Human Powered Vehicle Design Competition. Team Finished 10<sup>th</sup>

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 1<sup>st</sup> Year in ASME's East Human Powered Vehicle Design Competition. Team Finished 7<sup>th</sup> 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 The 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 Ministry of National Defense as a Distinguished Greek Scientist Who Excels in Scientific Research Abroad

**2004** Winner of the Institute of Materials (IOM<sup>3</sup>) 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

**Invited  
Talks**

**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, 2<sup>nd</sup> 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 (invited poster)

**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

## **Research Experience**

### **2018- Associate Professor (Tenured)**

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, Foams, and Devices
- Design-Based 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/Sensing
- Biodegradable Electronics
- Contact-Based Sensors
- Design-Based Engineering Education

**2008-2012 Research Assistant Professor**

West Virginia University, Mechanical & Aerospace Engineering

- Design and Fabrication of Nanoenergy Harvesting Devices Based on Rotational Motion
- Nanomechanics 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 Films on Flexible Substrates for 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

**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 Thin Films
- Mechanics and Tribology of Touch-Screen Devices and Components

**2001 BS 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**

**2018- Associate Professor (Tenured)**

West Virginia University, Mechanical & Aerospace Engineering

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

**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

### **Educational Outreach**

- 1) Teaching 12<sup>th</sup> Grade Science Students at Fairmont Senior High School. "Energy Efficient Buildings and Structures", Fairmont, WV, 2010
- 2) Teaching 11<sup>th</sup> 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 5<sup>th</sup> Graders about Engineering and 3D Printing, Mountainview Elementary, Morgantown, WV, Dec. 2016
- 4) CAD and Additive Manufacturing Instruction to 6<sup>th</sup>-8<sup>th</sup> 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

- 2018-** Henry Loh, "Printable Graphene Nanoparticle Sensors" West Virginia University Mechanical & Aerospace Engineering (Advisor)
- 2018-** Iole Pecora, "3D Printing of Metal-Oxide Foams for Space Applications" West Virginia University Mechanical & Aerospace Engineering (Advisor)
- 2017-** Savan Suri, "Graphene – Metal Nanoparticle Composites for Plasmonic Applications" West Virginia University Mechanical & Aerospace Engineering (Advisor)
- 2017 -** Domenic Cipollone (WVU Provost Fellow), "Photochemistry Assisted Nucleation in Confined Areas for Additive Manufacturing of Metal-Semiconductor Composites" West Virginia University Mechanical & Aerospace Engineering (Advisor)
- 2014-2017** Maria Torres Arango, "Direct Writing of Hierarchical Foams", West Virginia University Mechanical & Aerospace Engineering (Advisor)
- 2014-** Jacob Cordonier (NSF Fellow), "Additive Printing of Nanoparticle-Based Materials for Flexible Electronics", West Virginia University Mechanical & Aerospace Engineering (Advisor)
- 2012-** Derrick Banerjee (Ruby Fellow), "Direct Writing of Embedded Wear Sensors", West Virginia University Mechanical & Aerospace Engineering (Advisor)

- 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 (Advisor)
- 2009-2013** Theodros Bejital, “Electromechanical Durability of Flexible Optoelectronic Devices”, West Virginia University, Mechanical & Aerospace Engineering (Day-to-day Supervision & Examining Committee Member)
- 2007-2010** Brice Gnahore, “Mechanical and Thermal Properties of Aerogel Materials for Energy Efficient Buildings”, West Virginia University, Mechanical & Aerospace Engineering (Day-to-Day Supervision & Examining Committee Member)

#### **MS Candidates**

- 2017-** Jacob Riddel, “Printable buffer layers for solar cells” West Virginia University, Mechanical and Aerospace Engineering (Advisor)
- 2016 - 2018** Daryl Kwakye-Ackah, “3D Printing of Hierarchical Foams” West Virginia University, Mechanical and Aerospace Engineering (Advisor)
- 2015-** Anirudh Tirunahari, “Direct Writing of Graphene – Based Composites” West Virginia University, Mechanical and Aerospace Engineering (Advisor)
- 2013-2015** Olatunde Abidakun, “Structure-Mechanical Properties Relationships of Nanoparticle-Based 3D Printed Layers”, West Virginia University,

Mechanical and Aerospace Engineering  
(Advisor)

**2014-** Andrew Hoover, "Design and Development of Sustainable Human Powered Vehicles", West Virginia University, Mechanical and Aerospace Engineering (Advisor)

**2013-2015** Sai Suvineeth Ramayanam, "Mechanical and Tribological Properties of Graphene Layers", West Virginia University, Mechanical and Aerospace Engineering (Advisor)

**2012-2013** Kyle Burrows, "Mechanical Properties of Sol-Gel ZnO Films", West Virginia University, Mechanical and Aerospace Engineering (Advisor)

**2011-2013** Sean Cronin, "Sustainable Devices on Flexible Platforms for Energy Harvesting and Sensing" West Virginia University, Mechanical & Aerospace Engineering (Advisor)

**2010-2011** Philip Mcelfresh, "Silver Ink Printing on Polymer Substrates for Flexible Solar Cells" West Virginia University, Mechanical & Aerospace Engineering (Advisor)

**2007-2008** Matthew Shafran, "Liquid Crystal Polymer Nanorods for Nanofluidic Applications" (Day-to-Day Supervision & Examining Committee Member)

### **Undergraduate Students**

**2018-** Christine Hernandez, Alexandra Wolfe,  
Muriithi-David Kem

**2017-** Jason Gibson, Nick Strogon

- 2015-2018** Jared Beard (Goldwater Fellow),  
Henry Loh
- 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 – Present Undergraduate Researchers and their Achievements

FEST Lab Undergrads since 2011	Awards Earned	Post-Grad Work/Accomplishments	Clubs/Activities
<b>Sean Cronin</b>	NASA WVSG Fellow	MSME, University Provost Fellow, Works at Bechtel Corp.	WVU Hockey Team
<b>Derrick Banerjee</b>	NASA WVSGC Fellow, WVU Outstanding Senior, NSF Fellow Honorable Mention	MSME, Ruby Fellow, MRS Student Chapter (Treasurer)	Tau Beta Pi, ASME
<b>Guy Cordonier</b>	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
<b>Dillon Carden</b>	NASA WVSGC Fellow	MBA, works at GM	WVU ecoCAR

<b>Lee Chirpas</b>	NUE, IRES	Works with DoD	MRS
<b>Chris Nestor</b>	NUE	MS in Mechanical Engineering	WVU ecoCAR
<b>Arielle Gaither</b>	NASA WVSGC Fellow	M/E Project Engineer at The Whiting-Turner Contracting Company	Varsity Track & Field
<b>John Cordonier</b>	NASA WVSGC Fellow	MS in Chemical Engineering	AIChE
<b>Alana Andrade</b>	NUE	MS in Chemical Engineering (University of Bahia – Brazil)	*(Exchange student from Brazil)
<b>Domenic Cipollone</b>	NUE, IRES, STEM SURE, Provost Fellow	Plans to continue to Grad School	MRS
<b>Lynnora Grant</b>	NUE, IRES, LSAMP, McNair, NSF Fellowship	Plans to continue to Grad School	MRS, NSBE (President)
<b>Jared Beard</b>	NASA WVSGC Fellow, IRES, Goldwater Fellow	Plans to continue to Grad School	MRS
<b>Anna Cokeley</b>	NUE, STEM SURE, IRES	Plans to continue to Grad School	MRS, Varsity Rowing, SWE
<b>Kerwin Moreland</b>	NUE, IRES	Plans to work in Industry	3D Printing Club, MRS
<b>Harrison Loh</b>	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
<b>Kristina Sebacher</b>	NUE, IRES	Plans to continue to Grad School	AIChE, Alpha Omega Epsilon
<b>Molly Callaghan</b>	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-** ~150 Undergraduate Student Members to date

**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 70 Users Trained)

## Research Funding

- Y. 2019** National Aeronautics & Space Administration  
**PI** "3D Printing of Hierarchical Foams in Microgravity" **\$148,216**
- Y. 2018** International Zinc Lead Research Organization  
**PI** "3D Printing of Zn alloy" **\$5,000**
- Y. 2017** O'Brien Seed Funding – WVU Energy Institute  
**Co-PI** "Graphene-Nanoparticle Composite Sensors for Shale Gas Applications" **\$40,000**
- Y. 2017** National Aeronautics & Space Administration  
**Science-PI** "3-D Printed Titanium Dioxide Foams Under Extreme Environment Exposure At Low-Earth Orbit" **\$100,000**
- Y. 2016** WVU-Health Sciences  
**Co-PI** "Biomimetic Integrated System for Targeted Neuroplasticity and Neuroprosthesis" **\$45,000**
- Y. 2015** Department of Energy  
**Co-PI** "Direct Writing of Wireless Sensors for Harsh Environments" **\$399,965**
- Y. 2015** Eastman Chemical Company, Va  
**PI** "Corrosion and Durability of Low-E films" **\$24,000**
- Y. 2014** National Science Foundation  
**PI** "IRES: U.S.-Greece Undergraduate Engineering Research on Sustainable Indoor Living Environments" **\$249,896**
- Y. 2013** National Science Foundation  
**PI** "NUE: NanoFIT for Sustainable Living" **\$199,005**
- Y.2013** Eastman Chemical Company, Va

**PI** "Corrosion and Durability of Low-E films" **\$17,000**

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

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

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

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

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

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

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

**Collaboration  
With Industry**

**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 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)
- Flexible and Printed Electronics (IoP)

### **Professional Societies**

- American Society of Mechanical Engineers (ASME)
- Materials Research Society (MRS)
- Institute of Physics (IOP), U.K.
- Society of Information Display (SID)
- Sigma Xi

### **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-date, West Virginia State Science and Engineering Fair Judge, Fairmont, WV

### **Collaborators**

- Dr. Stephen Kukureka, The University of Birmingham, U.K.
- Prof. J. Stuart Abell, The University of Birmingham, U.K.
- Prof. Chih-Hung Chang, Oregon State University
- Prof. Eric Diau, National Chiao Tung University, Taiwan
- Prof. George Kiriakidis, University of Crete, Greece
- Prof. Charter Stinespring, West Virginia University, WV

- Prof. Rakesh Gupta, West Virginia University, WV
- Prof. Debangsu Bhattacharyya, West Virginia University, WV
- Prof. Cerasela Zoica Dinu, West Virginia University, WV
- Prof. Dimitris Korakakis, West Virginia University, WV
- Prof. Edward Sabolsky, West Virginia University, WV
- Dr. Darran Cairns, Tailored Surfaces, WV
- Dr. David Hecht, Elo Touch Systems TE, San Francisco, CA
- Dr. Jaime Li, Eastman Chemical Company, Martinsville, Va
- Dr. Aaron Kessman, Mylan, VT

## 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)

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- 71) M. A. Torres, Arango, A. S. Valenca de Andrade\*, D. T. Cippolone\*, **K. A. Sierros**, “Direct Writing of UV Curable inks for Solar Cells, Materials Research Society”, 2015 MRS Fall Meeting, Symposium BB, Nov. 29-Dec. 4<sup>th</sup>, 2015, Boston, Massachusetts

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- 73) J. J. Beard\*, A. M. Cokeley\*, M. A. Torres Arango, **K. A. Sierros**, "Silver Based Directly Written Electrodes on Compliant Substrates" 12<sup>th</sup> Undergraduate Research Day at WV Capitol, Feb. 25, 2016
- 74) M. A. Torres Arango, **K. A. Sierros**, "Additive Manufacturing of Ag Micro-Patterns for Flexible Energy Devices", 2015 Trans Tech Conference, Nov. 5<sup>th</sup>, Morgantown, WV
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- 81) L. O. Grant\*, D. T. Cipollone\*, M. A. Torres Arango, **K.A. Sierros**, "TiO<sub>2</sub> Foam for Direct Writing Thin Structures" WVU 1<sup>st</sup> Annual Undergraduate Spring Symposium, April 8, 2017, Morgantown, WV
- 82) 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 1<sup>st</sup> Annual Undergraduate Spring Symposium, April 8, 2017, Morgantown, WV
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- 87) 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
- 88) 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
- 89) 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
- 90) 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
- 91) 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
- 92) 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" 14<sup>th</sup> International Ceramics Congress, Perugia, Italy, June 4-14, 2018

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- 94) 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
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- 96) 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