Pelagia-Irene (Perena) Gouma
Edward Orton Jr., Chair in Ceramic Engineering
Professor, Dept. of Materials Science & Engineering
Professor, Dept. of Mechanical and Aerospace Engineering
284 Watts Hall, 2041 N. College Rd, Columbus, OH, 43210;
Phone: (614) 292-4931;
Email: gouma.2@osu.edu

I. Education

July 1990 **B.S.** *Applied Physics*, Aristotle University of Thessaloniki, Greece
July 1992 **M.S.** *Materials Science & Engineering*, The University of Liverpool. UK
Dec. 1993 **M. Phil.** *Organizational Management*, The University of Liverpool, UK
Dec. 1996 **Ph.D**. *Materials Science & Engineering*, The University of Birmingham, UK

II. Employment

Sept 2017-to-date	**Edward Orton Jr. Chair in Ceramic Engineering, Professor** *(with tenure)*, Dept. of Materials Science and Engineering, Dept. of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH.
Sept 2016-2017	**Professor** *(with tenure)*, Dept. of Materials Science and Engineering, University of Texas-Arlington, TX; *Lead Scientist* at UTARI- Institute for Predictive Performance Methodologies
2012-2016	***Professor*** *(with tenure),* Dept. of Materials Science & Engineering, State University of New York-Stony Brook, NY; *Director,* Center for Nanomaterias and Sensor Development, NY
2005-2012	***Associate Professor*** *(with tenure),* Dept. of Materials Science & Engineering, State University of New York-Stony Brook, NY; *Director,* Center for Nanomaterias and Sensor Development, NY
2000-2005	***Assistant Professor***, Dept. of Materials Science & Engineering, State University of New York-Stony Brook, NY
1997-2000	***Post-doctoral Researcher*** Dept. of Materials Science Engineering, The Ohio State University, Columbus, OH
1992-1993	***Research Assistant***, School of Applied Sciences, The University of Liverpool, UK

III. Scholarships & Awards

2022	**Keynote Speaker**, Main Forum, **Aristotle Medical Forum**, July 2022
2022	Elected **University Senator and Chair of IPPC**
2022	Organizing Committee of **Big Ten Women's Workshop**, 22, Chicago
2021	**Innovators Award**, College of Engineering, The Ohio State University
2021	**TEDx Talk: COVID-19: Test Results Within One Breath**
2019-2020	**President's and Provost Leadership Institute (PPLI) Fellow**
2019	**Fellow of The American Ceramic Society**
2019	**Mars G. Fontana Award for Outstanding Teaching at MSE**
2018	**Plenary Speaker**, 17th IMCS, Vienna, Austria
2016	Invited Panelist, NSF Town Hall Session, AVS meeting, Nashville, TN
2016	Member of the ***National Academy of Inventors***
2015	Keynote Speaker, Advances in Functional Materials, Stony Brook, NY.
2014	Invited Speaker, T Sensors Summit, La Jolla, CA.

2014	Plenary Speaker, Eurosensors Conference, Brescia, Italy.
2013	***Richard M. Fulrath Award*** of The American Ceramic Society
Oct 2012	*Co-Organizer/Chair*, ECI: **Fibrous Protein Nanocomp. Conf**, Crete
2012	**NSF Science Nation Video on Breath Printing**
Dec 2011	Graduate of the *Inaugural Class* of **NSF I-Corps** Program
May 2011	*Organizer and General Chair*, ECI: **ISOEN 2011 Conference**, NYC
Aug 2010	***VIP Tour*** *USS Carl Vinson CVN 70,* **US Navy** EOV
Feb 2010	*Nanotechnology Thought Leader*, AzoNano
March *2009*	*Invited Lecturer*, ISSTQA, Tokyo, Japan
March 2009	*Visiting Faculty*, Sensor Lab, University of Brescia, Italy
2008	***Fulbright Scholar*** –UNICAMP & PUC Campinas, Brazil
2007	*Visiting faculty*, PTL, ETH Zurich, Switzerland
Spring 2007	*Sabbatical Leave*
2007	*UEC Member*, Center for Functional Nanomaterials, BNL
July 2006	*Discussion Leader*, Gordon Research Conference, Colby College
July 2006	*Plenary Speaker*, ACUN-5 Conference, Sydney, Australia
2005	*Guest Scientist*, NIMS, Tsukuba, Japan
Nov 2005	*Invited Speaker*, EACCS Conference, Guilin, China
Oct 2005	*Invited Opponent* in Ph.D. Defense, Linköping University, Sweden
Feb 2005	*Invited Speaker*, ***US National Academies***: "GDEST: US-Japan Workshop on the Future of Sensors and Sensor Systems", Tsukuba, Japan
Aug. 2004	*Visiting Faculty*, College of Engineering, Univ. of Cyprus, Cyprus
2003	*Visiting Scientist*, Gas Sensor Laboratory, Univ. of Brescia, Brescia, Italy
from 2002	*Faculty Fellowship*, National Center for Electron Microscopy (NCEM), Lawrence Berkeley National
from 2001	*Guest Scientist*, Dept. of Materials Science, BNL
2003	Received *Promising Inventor Award* (SUNY Research Foundation-Invention, Creation and Discovery category)

IV. Journal Editorial Boards

• ***Associate Editor, IEEE Sensors Journal,*** IEEE Sensors Council
• ***Associate Editor, Journal of the American Ceramic Society,*** Wiley
• Member, International Editorial Board, *Journal of Nanoengineering and Nanomanufacturing*, American Scientific Publishers
• *Member, Editorial Board* of *Recent Patents on Nanotechnology*, Bentham Science Publishers
• *Member, Editorial Board* of the *American Journal of Nanomedicine*, Elsevier
• *Member, Editorial Board* of the *Sensor Letters* Journal, American Scientific Publishers
• *Member, Editorial Board* of the *Materials* Journal, MDPI
• *Member, Editorial Board* of the *International Journal of Biosensors and Bioelectronics*, MedCrave online

V. Honors: (selected distinguished lectures, press conferences, and positions)
2022 ***Invited*** *to* ***Dean Howard's Enginuity Podcast****, January 24, 2022: "Breathing innovation into medical diagnostics*

2021 ***Invited Speaker*- "Breath-based Diagnostics: Looking Beyond the Horizon", DTRA,** July 21, 2021 (online)
2021 ***Featured*** at **NSF.gov:** *The Discovery Files* ***15-SEC COVID TEST!***
2021 Mentioned in New York Times article for her Breath Test for COVID-19
2020 Mentioned in The Wired Magazine for the COVID breath test
2018 ***Keynote Speaker***, ESTS 18, Melbourne, Australia
2018 ***Plenary Speaker***, 17th IMCS, Vienna, Austria
2018 Interview- Digital Leben -Sensorchip soll Krankheiten erkennen (Ö1; 18.07.2018)
2018 Interview-Slovenian press Delo
2017 ***Invited Speaker***, ICCES 2017, Funchal, Portugal, June 2017 (talk given by G. Jodhani on my behalf)
2017 Invited Speaker and Invited Chairperson for "Wearable Sensor Technologies for Clinical Use", at Sensors for Medical Applications Conference, Boston, (attended by G. Jodhani on my behalf).
2017 NBC News report https://www.nbcnews.com/mach/science/your-own-breath-could-make-needle-sticks-thing-past-n722681
2017 ***Invited Technical Speaker***, "Smart City, Smart Health Synposium", CIE/IEEE/UTD, Texas.
2017 ***Invited Speaker***, 14th International Conference on Nanosciences and Nanotechnologies, Thessaloniki Greece.
2016 ***Invited Speaker***, 5th IC4N Conference, Porto Heli, Greece.
2016 ***Invited Speaker***, ICEM 17, Society for Experimental Mechanics, Rhodes, Greece.
2015 ***Keynote Speaker***, XXXI Panhellenic Conference on Solid State Physics and Materials Science, Thessaloniki, Greece.
2015 ***Keynote Speaker***, Advances in Functional Materials, Stony Brook, NY.
2015 ***Invited Speaker***, Symposium for Health Care and Food Safety, The Electrochemical Society, AZ, 2015.
2015 ***NSF Director congressional testimony*** on my research
2014 Invited Speaker, T Sensors Summit, La Jolla, CA.
2014 ***Plenary Speaker***, Eurosensors Conference, Brescia, Italy.
2014 ***EE Times*** https://www.eetimes.com/document.asp?doc_id=1324640
2013 Fulrath Lecture at MS&T'13, Montreal and **Fulrath award**, ACERS
2013 Featured at **Inside Science TV**
(http://www.insidescience.org/content/cellphones-detecting-asthma/980)
2012 Featured at **FOX News Housecall**
(http://video.foxnews.com/v/1772104500001/bad-breath-a-sign-of-disease)
2012 Featured Article in Scientific American
(http://www.scientificamerican.com/article.cfm?id=electronic-nose-disease-diagnosis)
2012 NSF Science Nation Video
(http://www.nsf.gov/news/special_reports/science_nation/breathprinting.jsp)
2012 Featured in Special video on the breathalyzer by **TV Globo** Science Series
2011 Elected by ISOCS and ECI the Organizer and General Chair of ISOEN 2011
2011 Featured in articles at CNBC, FAST COMPANY, MASHABLE
2010 Interviewed by Personalized Medicine Journal.
2010 Interviewed by TV 55 about my breath analyzer technology
2010 FIOS 1 News Story about my sensor nanotechnology

2010 Invited Seminar, MSE Dept., The Ohio State University
2009 Invited Speaker, IC4N conference, Rhodes, Greece
2009 Invited Speaker, Nanotech 2009, Houston, TX
2009 Invited Seminar, International Symposium on Sensing Technologies, Tokyo, Japan
2009 Invited Seminar, WVNano, West Virginia University
2009 Invited Talk, 33rd Int. Conf. Advanced Ceramics & Composites, Daytona Beach
2009 Elected the sole organizer of the 2011 ISOEN international meeting
2008 Invited Seminar, UNICAMP, Brazil
2008 Invited Seminar, IC4N
2007 Sabbatical Leave
2007 Keynote Address, "ISNEPP 2007", Florida- given by a representative
2007 Invited Seminar, ETH Zurich
2007 Invited Seminar, RPI, NY
2007 Invited Talk, "Gas Sensor Conference", Mumbai, India-given by a representative
2006 Invited Talk, E-MRS meeting, Nice, France.
2006 Technical Program Committee Member, IMCS-11, Brescia, Italy
2006 Conference Committee Member, ACUN-5, Sydney, Australia
2005 Invited Talk & Session Chair, EACCS Conference, Guilin, China
2005 Invited seminar, DOE's Nanocenter, Brookhaven National Laboratory
2004 Invited Talk & Session Chair, Nano-Materials Conference, Kolkata, India
2004 Invited Seminar, Hungarian Academy of Sciences, Budapest, Hungary
2004 Invited Talk, Microscopy Society of America Meeting, Savannah, GA
2004 Invited Talk & Session Chair, 10-IMCS, Tsukuba Japan
2004 Invited Talk, AIST Workshop, Japan
2004 Invited Seminars (3), UCY, Cyprus
2004 MRS Spring Meeting, Symp. J, Session Chair, San Fransisco, CA
2003 Invited Seminar, Univ. of Brescia, Italy
2003 Invited Seminar, Brookhaven National Laboratory
2003 Invited Talk, Long Island Technology Hall of Fame
2002 Invited Seminar, National Center for Electron Microscopy, LBNL
2002 Invited Seminar, Naval Research Laboratory, Stennis Space Center
2002 TMS Annual Meeting, Session Chair, Seattle, WA

TEACHING

COURSES TAUGHT

Class	Level	Semester
Thermodynamics of Materials	U	S-2001
Transmission Electron Microscopy	G	S-2001
Imperfections	G	F-2001
Practical Skills in SEM	G	F-2001
Thermodynamics of Materials	U	S-2002
Transmission Electron Microscopy	G	S-2002
Imperfections	G	F-2002
Practical Skills in SEM	G	F-2002
Thermodynamics of Materials	U	S-2003
Transmission Electron Microscopy	G	S-2003

Imperfections	G	F-2003
Sensor Materials and Devices	U	F-2003
Thermodynamics of Materials	U	S-2004
Transmission Electron Microscopy	G	S-2004
Sensor Materials and Devices	U/ G	F-2004
Thermodynamics of Materials	U	S-2005
Transmission Electron Microscopy	G	S-2005
Sensor Materials and Devices	G	F-2005
Thermodynamics of Materials	U	S-2006
Transmission Electron Microscopy	G	S-2006
Sensor Materials and Devices	U/G	F-2006
Sensor Materials and Devices	U/G	F-2007
Thermodynamics of Materials	U	S-2007
Transmission Electron Microscopy	G	S-2007
Sensor Materials and Devices	G	F-2008
Thermodynamics of Materials	U	S-2009
Transmission Electron Microscopy	G	S-2009
Sensor Materials and Devices	G	F-2010
Transmission Electron Microscopy	G	S-2011
Sensor Materials and Devices	G	F-2011
Transmission Electron Microscopy	G	S-2012
Transmission Electron Microscopy	G	S-2013
Sensor Materials and Devices	G	S-2013
Sensor Materials and Devices	G	F-2013
Scanning Electron Microscopy	G	S-2014
Transmission Electron Microscopy	G	S-2014
Sensor Materials and Devices	G	F-2014
Scanning Electron Microscopy	G	S-2015
Transmission Electron Microscopy	G	S-2015
Sensor Materials and Devices	G	F-2015
Scanning Electron Microscopy	G	S-2016
Transmission Electron Microscopy	G	S-2016
Ceramics	U/G	S-2016
Composites	U/G	S-2018
MSE Lab 3332 module 3	U	S-2018
Ceramic Powder Processing	U	F 2018
Composites	U/G	S-2019
MSE Lab 3332 module 3	U	S-2019
Ceramic Powder Processing	U/G	F-2019
Lab 5531 Ceramics Processing	U/G	F-2019
Composites	U/G	S-2020
Ceramic Powder Processing	U	F-2020
Lab 5531 Ceramics Processing	U/G	F-2020
Composites	U/G	S-2021
Ceramic Powder Processing	U	F-2021
Lab 5531 Ceramics Processing	U/G	F-2021

Composites	U/G	S-2022
Ceramic Powder Processing	U	F-2022
Lab 5531 Ceramics Processing	U/G	F-2022-current
Polymer Synthesis (5641)	U/G.	F-2022-current
Composites	U/G	S-2023

Ph.D. STUDENTS

sole advisor

1. Mallikarjun Karadge, "Transmission Electron Microscopy Studies on HCP to FCT + Precipitate Transformations in Lamellar γ-TiAl Alloys", Ph.D. received, Aug. 2004, (currently: Scientist at GE Bangalore, India).
2. Arun K. Prasad, "Study of Gas Specificity in MoO_3/WO_3 Thin Film Sensors and their Arrays", Ph.D. received, May 2005, (currently: Research Scientist at IGCAR, India).
3. Krithika (Iyer) Kalyanasundaram, "Biomarker Sensing using Nanostructured Metal Oxide Sensors", Ph.D. received Dec. 2007 (currently employed by Sensitron, NY).
4. Aisha Bishop (-*Turner Fellow*), "Electrospun Conducting Polymer Composites for Chemo-Resistive Environmental and Health Monitoring Applications", Ph.D. received Feb. 2008 (currently Materials Engineer US ARMY ARDEC, NJ)
5. Lisheng Wang, "Tailored Synthesis and Characterization of Selective Metabolite-detecting anoprobes for Handheld Breath Analysis", Ph.D. received Dec 2008 (currently post-doctoral fellow at Univ. of British Columbia, Canada).
6. Jusang Lee, "Synthesis and Characterization of Nanostructured Metal Oxides for Energy and Environmental Remediation Applications", Ph.D. received December 2013.
7. Shantanu Sood, "Polymorphism Control in Nanostructured Metal Oxides", Ph.D. received, Aug. 2014.
8. Selda Topcu, "TiO_2 and Ce-TiO_2 Photocatalysts for Water Remediation and Energy Applications", Ph.D. received May 2016.
9. Gagan Jodhani, "Novel Processing of Ceramics with Polymorphic Control", Ph.D. received Dec 2016.
10. Owen Abe, "Physical and Chemical Properties of Ferroelectric Tungsten Trioxide", Ph.D. received, OSU, Dec. 2020.
11. Milind Pawar, "Self-Propagating High Temperature Synthesis (SHS) of Semiconducting Chevrel Phase Compounds", Ph.D. received, OSU, Aug. 2021.
12. Fateh Mikaeili, "Visible Light Self Supported TiO2 based Photocatalysts", Ph.D. received, OSU, August 2021.
13. Zanlin Qiu, "Novel Synthesis Methods of Tungsten Trioxide Polymorphs", Ph.D. August 2023.

MASTER STUDENTS

sole advisor

1. Arun K. Prasad, "Processing and Microstructural Effects on the Gas Sensing Properties of MoO_3 and WO_3 Thin Films", M.S. received, Aug. 2002.
2. Hongwen Zhou, "Microstructure Study of Polysilicon Thin Films and Self-Supporting Oxidized Titanium Foils", M.S. received, Aug. 2003.
3. Saket Gadia, " Gas Sensor Based on Reactive Ion Beam Assisted Deposition of MoO_3 thin Films", M.S. received, Aug. 2004.
4. Dong Han, "Electrospinning of Nanostructured Scaffolds for

Tissue Engineering Applications", M.S received Aug. 2005

5. Ibibia Altraide, "Propagation of Interfaces: From Tin Dendrites to Bacterial Colonies-Generating Order and Complexity from Disorder and Simplicity", M.S. received Aug 2005.
6. Katarzyna M. Sawicka , "Urea Biosensor Based on Electrospun Biocomposites", M.S. received May 2005.
7. Smita Gadre, " Bio-doped Ceramics: Synthesis and Characterization", M.S. received Fall 2006.
8. Koushik Ramachandran, "Electrospun Hydroxyapatite Incorporated Biocomposite Scaffold for Tissue Engineering" , M.S. received Dec. 2007
9. Ruipeng Xue, "Hybrid Nanostructures for Bone Tissue Engineering", M.S. received May 2010.
10. Gagan Jodhani, "Ceramic Nanomaterials for Energy", M.S. received December 2010.
11. Aditya Thakar, "Development of Biosensor for detection of Thrombin in blood by polyaniline nanofibers", M.S. received May 2011.
12. Prasad Shanmugasundaram, "Photocatalytic Degradation of Azo Dyes using Doped Titania Fibers", M.S. received, Spring 2012.
13. Sherlyn Divya, "Electrospun Mixed Oxide Photocatalysts to Decompose Dyes in Water", M.S. received, Aug. 2013.
14. Guokuo Zheng,"High throughput electrospinning of high-quality nanofibers via an aluminum disk spinneret", M.S. Thesis, SUNY Stony Brook, May 2014.
15. Jing Zhang, "Polyaniline and Cellulose Acetate Chemomechanical Actuator and its Selectivity for Acetone" , M.S. Thesis, SUNY Stony Brook, May 2014.
16. Ruiyao Cui, "PVP-CA composite preparation and its Characteristics", M.S. Thesis, SUNY Stony Brook, May 2014.
17. Zhuolin Xia, "Fabrication and Characterization of Polyvinylpyrrolidone/Cu^{2+} Nanofibers", M.S. Thesis, SUNY Stony Brook, May 2014.
18. Lei Li, "Polyaniline/Cellulose Acetate Composite and its Ammonium Ion Sensing Applications", M.S. Thesis, SUNY Stony Brook, May 2014.
19. Jiahao Huang, Preparation and sensing properties of flame spray pyrolysis prepared WO3 nano particles based sensor, M.S. Thesis, SUNY Stony Brook, August 2014.
20. Wen Ling Liao, "Processing and Characterization of ε-WO_3 processed by Flame Spray Pyrolysis", M.S. thesis, SUNY Stony Brook, December 2014.
21. Yan Li, "Breath Biomarkers detection by chemical sensors", M.S. Thesis, SUNY Stony Brook, May 2015.
22. Chao Han, "Super-Hydrophobic High-Throughput Electrospun Cellulose Acetate (CA) Nanofibrous Mats as Oil Selective Sorbents", M.S. Thesis, SUNY Stony Brook, May 2015.
23. Xicheng Jia,"Self-supported PANI/WO_3 Hybrid Photocatalyst for Dye Remediation", M.S. Thesis, SUNY Stony Brook, May 2015.

VISITING SCIENTISTS and PROFESSORS

- Dr. Y. Nomura, Hitachi Chemical, Japan (2011)
- Professor Elizabeth de Souza, PUC Campinas, Brazil (2010)

• Dr. Namita Choudury, Ian Wark Institute, Australia (2007)
• Drs. H. Haneda and N. Ohashi, from NIMS, Japan, signing of MOU, (2006)
• Professor S. Pratsinis, from ETH Zurich, Switzerland (2005)
• Professor R. Moos, from Bayreuth University, Germany (2005)
• Dr. N. Ohashi, NIMS, Japan (2005)
• Dr. Elisabetta Comini, Assistant Professor, Univ. of Brescia, Italy (WISC collaboration, Sept. 2003, Oct. 2004, Dec. 2005, 2007, 2009)
• Dr. Judit Pfeifer, Senior Research Scientist, Hungarian Academy of Sciences, (OTKA funded visit, Fall 2005)
•Dr. Matteo Falasconi, Research Scientist, Univ. of Brescia, Italy (EC funded collaboration, Summer 2005)
• Dr. Csaba Balazsi, Research Scientist, Hungarian Academy of Sciences, (OTKA funded visit, Sept. 2004)

VISITING STUDENTS

1. Ms. Alexandra Teleki, Ph.D. student in Prof. S. Pratsinis group, ETH Zurich, Summer 2005.
2. Ms. Kathy Sahner, Ph.D. student in Prof. R. Moos group, Univ. of Bayreuth, Germany, Fall 2005.
3. Ms. Sabine Achmann, Ph.D. student in Prof. R. Moos group, Univ. of Bayreuth, Germany, Spring 2009.
4. Ms. Veronica Sberveglieri, Ph.D student at the University of Modena and Reggio Emilia, Italy, Fall 2011.

RESEARCH

PATENTS GRANTED (**20 total** including US and foreign ones):

- Patent granted US/Patent number 11,467,459 B2 issued on 10/10/22
- Patent granted Brazil 112012013191-5, issued on 10/29/2019
- Patent granted US /Patent number 8,980,640 issued on 3/17/2015
- Patent granted US /Patent number 8,955,367 issued on 02/17/ 2015

• Patents granted US/Patent No 8,758,261 issued on 06/24/2014
• Patents granted US/Patent No 8,485,983 issued on 07/16/2013,
entitled “Selective Nanoprobe for Olfactory Medicine”
• Patent granted US/Patent No 7,981,215 issued on 07/19/2011,
entitled “Electrospun Single Crystal MoO_3 Nanowires for Bio-Chem Sensing Probes”
• Patent granted US/Patent No 7,017,389 issued on 3/28/2006,
entitled “Sensors Including Metal Oxides Selective for Specific Gases and Methods for Preparing Same”
• Patent granted US /Patent No 6,682,700 issued on 1/27/2004, and
• Patent granted US /Patent No 6,682,322 issued on 2/10/2004
entitled: “Free standing fluid sensors, filters and catalyst devices, and methods involving same”

DISCLOSURES / PATENTS PENDING

Disclosures and patent applications filed at OSU:

Reference Number	Technology Title	Innovators	IP Status
T-2022-170	Novel Electrospun Universal Wicking Membrane for Biosensing Applications	Gouma, Pelagia Hessick, Ethan Gilmore, Tessa	63/428,856
T2021-235	Desktop High Throughput Electrospinning System (DHTES)	Gouma, Pelagia Gilmore, Tessa Pawar, Milind	Provisional Application 63/297,026 Patent pending
T-2021-088	A Skin Test for COVID-19	Gouma, Pelagia Bowman, Andrew Exline, Matthew	Provisional Application 63/254,315 Patent pending
T-2021-087	A Breath Test for COVID-19	Gouma, Pelagia Bowman, Andrew Exline, Matthew	PCT/US22/16579
T-2020-349	Breath-Based Early and Fast Detection of COVID-19 Infection	Gouma, Pelagia	63/149,905
T2020-154	Metabolic Sensors for Diabetes and Weight Management	Gouma, Pelagia	
T2020-151	Scalable Synthesis of Chevrel Phase Compounds (MxMo6S8) via Self-Propagating High Temperature Synthesis reaction	Gouma, Pelagia Pawar, Milind	PCT/US2021/031320
T2019-263	ELECTROCHROMIC DEVICES AND METHODS	Gouma, Pelagia Abe, Owen	**Patent granted: US 11,467,459 B2 Oct 11, 2022** Utility Application 16/268,094
T2019-188	Gouma Techs Under OSIF Management	Gouma, Pelagia-Iren	US and PCT Issued 8,955,367; 318776
T2019-011	"Amyloid Fibers from Wheat Flour"	Gouma, Pelagia Pawar, Milind Souchereau, Reid	
T2018-376	Better Recognition of Exposure to Asthma Triggers in the Home Environment using Smartphones	Dannemiller, Karen Gouma, Pelagia Perzanowski,	

	(BREATHES)	Matthew Qin, Rongjun	
T2018-194	Bio-Mimicking Chemomechanical Actuators as Continuous Skin Monitors	Gouma, Pelagia Jodhani, Gagan	
T2018-193	Isoprene Breathalyzer for the Detection and Monitoring of Sleep Disorders	Gouma, Pelagia	Provisional filed 62/875,289; 62/875,306

Disclosures and patent applications filed at SUNY Stony Brook:

• Electronic Nose based on Selective Resistive Sensors", Invention Disclosure, Date 1/30/03, SUNY Stony Brook reference R-7645
• "Electrospun Enzyme-Nanocomposite Membrane Biodetectors", Invention Disclosure, 11/16/04, SUNY Stony Brook reference R-7763
• "Room temperature biochemical sensors based on electrospun polymer composites", Invention Disclosure, 11/29/05, SUNY Stony Brook reference R-7862
• "3D Bio-mimicking scaffolds for tissue engineering", Invention Disclosure, 11/29/05, SUNY Stony Brook reference R-7863; SN 11/634,590, filed 12/6/2006
• "Electronic Tongues", Invention Disclosure, 02/02/2006, SUNY Stony Brook reference R-7876
• "Non-Invasive Theragnostics", Invention Disclosure, 02/02/2006, SUNY Stony Brook reference R-7877
• "Breath Analyzers for Cancer and Other Diseases Detection and Monitoring", Invention Disclosure, 02/02/2006, SUNY Stony Brook reference R-7878
• "Oxide Nanoprobes for Biological and Chemical Sensing Applications", Invention Disclosure, 02/21/2006, SUNY Stony Brook reference R-7885
• "Conducting Polymer pH Monitor", Invention Disclosure, 06/02/2006, SUNY Stony Brook reference R-7915
• "Ammonia Breath Analyzer", Invention Disclosure, 09/12/2007, SUNY Stony Brook, reference R-8008.
• Colloidal Synthesis of Hexagonal WO_3 Nanowires and Sheets", Invention Disclosure, 12/18/07, SUNY Stony Brook reference R-8033
• ""Band-aid" Type (Potassium) K+ BioSensor". Invention Disclosure, 10/6/2008, SUNY Stony Brook, reference R-8135
•"Selective Chemosensors", Invention Disclosure, 5/15/2009, SUNY Stony Brook, reference R-8192
• "Numerical Diagnostic Tool Breathanalyzer", Invention Disclosure, 5/15/2009, SUNY Stony Brook, reference R-8191
• "Water testing and remediation system", Invention Disclosure, April 2010, SUNY Stony Brook, reference R-8250.
• "Hydrocarbon recovery and oil spill remediation using nanostructured fiber mats", Invention Disclosure, 02/18/11, SUNY Stony Brook, reference R-8345
• "Nanogrids for water remediation", Invention Disclosure, 10/03/11, SUNY Stony Brook, reference R-8396

LIST OF PUBLICATIONS

1. *BOOKS and MONOGRAGHS*

1.F. Mikaeili, O. Abe, **P.I. Gouma**, (2022). High Throughput Electrospinning Technologies and Applications (Book Chapter), Advances in Technology and Applications, ASM international ASM Handbook Volume 23A, Additive Manufacturing in Biomedical Applications, 2022, ISBN: 978-1-62708-390-4

2.O. Abe, F. Mikaeili, **P.I. Gouma**, (2022). Selective Sensors for Volatile Biomarkers (Book Chapter), Volatile Biomarkers for Human Health; From Nature to Artificial Senses, Royal Society of Chemistry, October, 2022, ISBN: 978-1-83916-430-9

3.**P. I. Gouma**, "isoprene sensor/breathalyzer for monitoring…sleep disorder", **Amer. Ceram. Soc. Bulletin**, 98(4), 28-29, 2019.

4.D. Han and **P. I. Gouma**, "Electrospun Bioscaffolds That Mimic the Topology of Extracellular Matrix", in book **"Nanomedicine in Cancer"**, ed. L. P. Balogh, PAN STANFORD PUBLISHING PTE LTD, Singapore, pp. 159-169, 2017.

5. J. Huang, Y. Li, S. Sood, and **P.I. Gouma,** "Breath Biomarker Detection by Chemical Sensors", in book "**Semiconductor-based Sensors**", eds. Fan Ren and Stephen J Pearton, World Scientific Publishing Co., pp. 355-392, 2017 (ISBN 978-981-3146-72-3).

6. L. Wang and **P. Gouma**, "Selective Microstructure Synthesis and Sensing Dependencies: a WO_3 study", in **Metal Oxide Nanomaterials for Chemical Sensors**, eds. M. A. Carpenter, Sanjay Mathur, and Andrei Kolmakov, Springer, NY, 2013.

7. J. Lee and **P.I. Gouma**, "Sol-Gel Processed Oxide Photocatalysts", in "Sol-gel Processing for Conventional and Alternative Energy", "**Advances in Sol-gel Derived Materials and Technologies**", eds. M. Aparicio et al, Springer, NY, 2012.

8. **P. Gouma**, "Nanoceramic Sensors for Medical Applications" **Amer. Ceram. Soc. Bulletin**, 91(7) pp. 26-32, 2012

9."**Olfaction and Electronic Nose**: Proceedings of the 14th International Symposium on Olfaction and Electronic Nose", Ed. **P. Gouma**, AIP Conf. Proc., No 1362, NYC, May 2011.

10. A.M. Azad and **P.I. Gouma**, "Functional Ceramic Nanofibers via Electrospinning", **Encyclopedia on Nanoscience and Nanotechnology**, ed. H.S. Nawla, ASP, vol 14, pp. 301-329, 2011.

11. "**Functional Materials and Nanostructures for Chemical and Biochemical Sensing**", eds. E. Comini, **P. Gouma**, and L. Torsi, Materials Research Society, Warrendale, PA, 2010.

12. **P. Gouma**, **Nanomaterials for Chemical Sensors and Biotechnology**, Pan Stanford Publishing, 2009.

13. A. Haynes and **P. Gouma**, "Polyaniline Based Environmental Gas Sensors", in **Sensors for Environment, Health, and Security**, NATO Science for Peace and Security Series, ed. Baraton, M.I., pp. 451-459 2009.

14. C. Balazsi, S. Sedlackova, J. Pfeifer, A.L. Toth, E. O. Zayim, I.M. Szilagyi, L. ang, K. Kalyanasundaram, and **P.I. Gouma**, "Synthesis and Examination of Hexagonal Tungsten Oxide Nanocrystals for Electrochromic and Sensing Applications", in **Sensors for Environment, Health, and Security**, NATO Science for Peace and Security Series, ed. Baraton, M.I., pp. 7-91 2009.

15. K. Kalyanasundaram and **P.I. Gouma**, "Nanostructured Metal Oxides and their Hybrids for Gas Sensing Applications", book chapter for "Science and Technology of Chemiresistive Gas Sensors" series, vol.1 "**Chemiresistors**", ed. D.K. Aswal, Nova Science Publisher, New York, USA, 2008.

16 **P. Gouma** and S.E. Pratsinis, Guest Editors of the "**Journal of Nanoparticle Research**: An Interdisciplinary Forum for Nanoscale Science and Technology", Special Focus: Nanomaterials for Biochemical Sensors, Vol 8 (6), 2006.

17. **P. Gouma**, "**Electronic Olfaction and Taste Systems**"- Invited contribution - McGraw Hill 2006 Yearbook of Science & Technology, McGraw Hill, NY, pp. 113-115, 2006.

18. C.R. Clayton, G.P. Halada, and **P. Gouma**, "Microscopy and Microspectroscopy of Aluminum and Ferrous Alloys and their Surface Treatments", in "**Analytical and Mechanical Characterization of Aluminum**", D.S. MacKenzie and G. E. Totten (eds.), Taylor & Francis, pp. 607-639, Boca Raton, Fl, 2006.

19. "**Nanostructured Materials and Hybrid Composites for Gas Sensors and Biomedical Applications**", eds. **P. Gouma**, D. Kubinski, E. Comini, and V. Guidi, Materials Research Society, Warrendale, PA, in print, 2006

20. **P. Gouma**, Guest Editor of MRS Bulletin Special Issue, October 2004.

21. **P. Gouma** and G. Sberveglieri, "Novel Materials and Applications of Electronic Noses and Tongues", **MRS Bulletin**, 29 (10), pp. 697-700, 2004.

22. "**Silicon Carbide 2004-Materials, Processing and Devices**", vol. 815, Eds: M. Dudley, **P. Gouma**, T. Kimoto, P.G. Neudeck, and S. E. Saddow, Materials Research Society, Warrendale, PA, Spring 2004.

23. A. Michailidis, **P.-I. Gouma**, and R. Rada, "Applying Groupware Technologies to Support Management in Organizations", **Artificial Intelligence in Industrial Decision**

Making, Control, and Automation, Spyros Tzafestas and Henk Verbruggen (eds.), Kluwer, pp. 723-755, 1995.

2. PAPERS

REFEREED JOURNAL ARTICLES

1. Z. Qiu, J. Jinschek, and **P.I. Gouma**, "Two step solvothermal process for nanoarchitectonics of metastable hexagonal WO_3 nanoplates", *Crystals*, 13(4), 690, 2023.
2. **P.I. Gouma**, "How to Build Live-Cell Sensor Microdevices", Sensors, 23(8), 3886, 2023.
3. F. Mikaeili, T. Gilmore, and **P.I. Gouma**, "Photochemical Water Splitting vis Transition Metal Oxides", *Catalysts*, 12, 1303, 2022.
4. B. Dontha, M. Faltas, **P.I. Gouma**, and A. Kiourti, "Electromagnetic-based Deformation Monitoring for PANI-CA Breath Acetone Monitors", *IEEE J. Electromagnetics, RF and Microwaves in Medicine and Biology*, 6(4), 524-531, 2022.
5. A. Annerino, K. Narvaez, L. Joseph, L.C. Klein, and **P.I Gouma**, "Evaluating melting gel coatings for wearable metabolic sensors", *Smart Health*, 26, 100337, 2022.
6. M. Pawar and **P.I. Gouma**, "Intercalation-assisted massive phase transformation: The key to SHS synthesis?", *J. Am. Ceram. Soc*., 105(12), 7159-7170, 2022.
7. A. Annerino, M. Lawson, and **P.I. Gouma**, "Future Insights on High-Temperature Ceramics and Composites for Extreme Environments", *Int. J. Ceram. Sci. Eng*,, 4(5), 296-301, 2022.
8. A. Annerino, M. Faltas, M. Srinivasan, and **P.I. Gouma**, "Towards skin-acetone monitors with selective sensitivity: Dynamics of PANI/CA films", *Plos one*, 17(4), e0267312, 2022
9. T. Gilmore and **P.I. Gouma**, "Polymorphic Biological and Inorganic Functional Nanomaterials", *Materials*, 15, 5355, 2022.
10. A. Haynes and **P.I. Gouma**, "Perspective-Conducting Polymer Hybrids as Diagnostic Chemosensors*", J. Electrochem. Soc.*, 169, 037513, 2022.
11. E. Hessick, M. Pawar, R. Souchereau, E. Schmitz, and **P.I. Gouma**, "Novel, Inexpensive, and Scalable Amyloid Fibril Formation Method", (invited), *Materials*, 16, 1766, 2022.
12. X. Jia, D. Jiang, and **P.I. Gouma**, "Facile Synthesis of Self-Supported WO_3/PANI hybrid photocatalyst for methylene blue degradation under visible light", *Materials Letters,* 131869, 2022.
13. M. C. Exline. A. Stanacevic, A.S. Bowman, and **P.I. Gouma**, "Exhaled nitric oxide detection for diagnosis of COVID-19 in critically-ill patients", *PloS one*, 16(10), e0257644, 2021.
14. O. O. Abe , Z. Qiu, Z. Chen, J. R. Jinschek and **P.-I. Gouma,** "Effect of crystallite size on the low-temperature solid-solid phase transformations in the WO_3 system", *Ceramics International*, 47(23) 33476-33482, 2021.

15. A. Annerino and **P.I. Gouma**, "Future Trends in Semiconducting Gas-Selective Sensing Probes for Skin Diagnostics*", Sensors*, 21, 7554, 2021.
16. O. O. Abe , Z. Qiu , J. R. Jinschek and **P.-I. Gouma**, "Effect of (100) and (001) Hexagonal WO_3 Faceting on Isoprene and Acetone Gas Selectivity" *Sensors* 2021, *21*, 5, 1690. https://doi.org/10.3390/s21051690
17. M. Zhang, W. Lu, **P. I. Gouma**, Z. Xu, L. Wang, "Theoretical Prediction of Effective Stiffness of Nonwoven Fibrous Networks with Straight and Curved Nanofibers", *Composites Part A: Applied Science and Manufacturing* available online 2021, 143, 106311, https://doi.org/10.1016/j.compositesa.2021.106311
18. Z. Qiu, C.-H. Li, J. R. Jinschek, **P.-I. Gouma**, "Low temperature synthesis of metastable tetragonal yttria doped hafnia T-(Y-HfO_2) nanoparticles through mechanochemical processing and annealing", *Ceramics International,* 47(10), 14208-14215, 2021.
19. Z. Qiu, O. Abe, **P.I. Gouma**, J. Jinschek, "Determination of Polymorph Structures in Functional Metal Oxides using Convergent Beam Electron Diffraction", Microscopy and Microanalysis, 26 (S2), 244-247, 2020.
20. **P. I. Gouma**, F. Mikaeili, J. Lee, Y. Karimi and M. Stanacevic, "Sensing device for breath biomarker detection", *IEEE International Symposium on Olfaction and Electronic Nose (ISOEN),* 1-3, 2019
21. G. Jodhani, F. Mikaeili, and P**. Gouma**, "Flame Spray Synthesis of $VOPO_4$ polymorphs", *Frontiers in Materials*, 6, 254, 2019.
22. Y. Karimi, Y.Lin, G. Jodhani, M. Stanacevic, and **P.-I. Gouma**, "Single exhale biomarker breathalyzer", *Sensors*, 19(20) 270, 2019
23. M. Zhang, Y. Chen, F.-P. Chiang, **P.I. Gouma**, and L. Wang, "Modeling the large deformation and microstructure evolution of non-woven polymer fiber networks", *J. Applied Mechanics*, 86(1), 011010, 2019
24. M. Pawar, S.T. Sendogdular, and **P. Gouma**, " A brief Overview of TiO_2 photocatalyst for organic dye remediation: Case study of reaction mechanisms involved in Ce-TiO_2 photocatalysis system", (invited) *J. of Nanomaterials*, 5953609, 2018.
25. **P. I. Gouma**, " Isoprene sensor/breathalyzer for monitoring sleep disorders", pp. 55-56, *17th International Meeting on Chemical Sensors - IMCS 2018*, DOI 10.5162/IMCS2018/PT1, 2018
26. O.O. Abe, G. Jodhani, and **P.I. Gouma**, "Ferrochromic WO_3 nanoparticles for metabolic sensors", pp. 765-766, 17th International Meeting on Chemical Sensors - IMCS 2018, DOI 10.5162/IMCS2018/P2EM.10, 2018
27. F. Mikaeili and P.I. Gouma, "Super Water-Repellent Cellulose Acetate Mats", *Scientific Reports*, 8: 12472, 2018.
28. F. Mikaeili, S. Topcu, G. Jodhani, and **P.I. Gouma**, "Flame-sprayed Pure and Ce-Doped TiO_2 Photocatalysts", *Catalysts*, 8, 342, 2018.
29. O.O. Abe, G. Jodhani, and **P. Gouma**, "On the coupled ferroelectric-electrochromic effect of epsilon-WO_3", *J. Am. Ceram. Soc*., 101(1), pp. 12-15, 2018.
30. **P.I. Gouma**, L. Wang, S. R. Simon and M. Stanacevic, "Novel Isoprene Sensor for a Flu Virus Breath Monitor", *Sensors 17*(1), 199, 2017; doi:10.3390/s17010199

31. **P. Gouma**, M. Stanacevic, Y. Karimi, J. Huang and G. Jodhani, "No nanosensor and single exhale breathalyzer for asthma monitoring," *IEEE Xplore*, pp. 1-3. 07 August 2017, doi: 10.1109/ISOEN.2017.7968892.
32. G. Jodhani and **P.I .Gouma**, "Flame spray pyrolysis processing to produce metastable phases of metal oxides", **invited paper**, *JOJ Material Science* 1, pp. 1-5, 2017. https://juniperpublishers.com/jojms/JOJMS.MS.ID.555557.php
33. **P.I. Gouma**, S.R. Simon and M. Stanacevic, "Nano-sensing and catalysis technologies for managing food-energy-water (FEW) resources in farming", *Materials Today Chemistry*, 1, 40-45, 2016.
34. G. Jodhani, J. Huang, and **P. I. Gouma**, "Flame Spray Synthesis and Ammonia sensing properties of pure α-MoO_3 nanosheets", *J. of Nanotechnology*, vol. 2016, Article ID 7016926, 5 pages, 2016. http://dx.doi.org/10.1155/2016/7016926
35. G. Jodhani, S. Topcu, A. Bishop-Haynes, J. Lee and **P.I. Gouma**, "Self-supported Nano-WO_3 foams formed by self-assembly of non-woven mats", **invited paper**, *J. of Advances in Nanomaterials*, 2(1), 57-63, Dec. 2016.
36. S. Topcu, G. Jodhani, and **P. I. Gouma**, "Optimized nanostructured TiO2 photocatalysts", **invited paper**, *Frontiers in Materials*, 3, 35, July 2016.
37. M. Mojtabavi, G. Jodhani, R. Rao, J. Zhang, and **P. Gouma**, "A PANI-cellulose acetate composite as a selective and sensitive chemomechanical actuator for acetone detection", *Advanced Device Materials*, 2(1), 1-7, 2016.
38. **P.I. Gouma**, M. Stanacevic, S. Simon "An overview of the translation of selective semiconducting gas sensors from first results to automotive exhaust gas monitors to a platform for breath-based diagnostics, *Translational Materials Research* 2 (4), 045001, 2015.
39. **P.I. Gouma** and K. Kalyanasundaram, "Novel synthesis of hexagonal WO_3 nanostructures", *Journal of Materials Science* 50 (9), 3517-3522, 2015.
40. **P.I. Gouma** and L.Wang, "Flame Spray Synthesis of WO_3 for NO breath monitors", *J. Material Sci. Eng*., 4:3, 2015.
41. **P. Gouma**, S. Sood, M. Stanacevic, and S. Simon, "Selective Chemosensing and Diagnostic Breathanalyzer", *Procedia Engineering* 87, 9-15, 2014.
42. S. Sood, K. Kisslinger, and **P. Gouma**, "Nanowire Growth by an Electron-Beam-Induced Massive Phase Transformation", *J. Am. Ceram. Soc*., 97(12), pp. 3733-3736, 2014.
43. J. Lee, S. Divya, P. Shanmugasundaram, and **P. I. Gouma**, "Synthesis and Characterization of Visible-Light Activated CuO-TiO2 Nanofibrous Mats", *Journal of Nanoengineering and Nanomanufacturing*, 4(2), pp. 140-145 (6), 2014
44. J. Lee and **P.I. Gouma**, "Flame-Spray-Processed CuO-WO_3 Nanopowders as Photocatalysts", *J. Am. Ceram. Soc*., 97(12). Pp. 3719-3720, 2014.
45. S. Sood, S. Divya, and **P. Gouma**, "High Throughput Electrospinning of 3D Nano Fibrous Mats", *Journal of Nanoengineering and Nanomanufacturing*, 4(1), pp. 39-44 (6), 2014.
46. **P.I. Gouma** and J. Lee, "Photocatalytic Nanomats Clean Up Produced Water from Fracking", *Transl. Mater. Res*., 1, 025002, 2014(http://iopscience.iop.org/2053-1613/1/2/025002/pdf/2053-1613_1_2_025002.pdf)
47. S. Sood and **P. Gouma** "Polymorphism in nanocrystalline binary metal oxides" *Nanomaterials and Energy*, 2(NME2), 1-15, 2013.

48. S. Sood and **P. Gouma** "Polymorphic Phase Transitions in Nanocrystalline Binary Metal Oxides", *J. Am. Ceram. Soc*., 96 [2], 351-354, 2013.
49. J. W. Gardner, K.C. Persaud, **P. Gouma**, and R. Gutierrez-Osuna, "Guest Editorial-Special issue on Machine Olfaction", *IEEE Sensors Journal* 12(11), 3105-3107(NOV 2012)
50. **P. Gouma**, R. Xue, C.P. Goldbeck, P. Perrotta, and C. Balazsi, "Nano-hydroxyapatite-Cellulose Acetate Composites for Growing of Bone Cells" *Mater. Sci, & Eng C.,* 2012.
51. **P. Gouma**, "Nanoscale Polymorphic Oxides for Selective Chemosensors", *Science of Advanced Materials*, 3(5), pp. 787-793, 2011.
52. **P. Gouma**, A. Prasad and M. Stanacevic, "A Selective Nanosensor Device for Exhaled Breath Analysis", *J. Breath Res*., 5 (3), p. 037110, 2011.
53. **P. Gouma**, "Revolutionizing Personalized Medicine with Nanosensor Technology", *Personalized Medicine*, 8(1), pp. 16-16, 2011.
54. J. Lee and **P.I. Gouma**, "Tailored 3D CuO Nanogrid Formation", J. Nanomaterials, in print 2011 (online access: http://www.hindawi.com/journals/jnm/2011/863631.html).
55. L. Wang, K. Kalyanasundaram, M. Stanacevic, and **P. Gouma**, "Nanosensor Device for Breath Acetone Detection", Sensor Letters, 8, (1-4), 2010.
56. **P. Gouma**, K. Kalyanasundaram, X. Yun, M. Stanacevic and L. Wang, "Chemical sensor and breath analyzer for ammonia detection in exhaled human breath", *IEEE Sensors*, Special Issue on Breath Analysis, 10 (1), pp. 49-53, 2010.
57. C. Balazsi, A. Bishop, J.H.C. Yang, K. Balazsi, F. Weber, and **P.I. Gouma**, "Biopolymer-Hydroxyapatite Scaffolds for Advanced Prosthetics", *Composite Interfaces*, 16(2-3), pp. 191-200, 2009.
58. I.M. Szilagyi L.S. Wang, P.I. Gouma, C. Balazsi, J. Madarasz, and G. Pokol, "Preparation of hexagonal WO_3 from hexagonal ammonium tungsten bronze for sensing NH_3", *Materials Research Bulletin*, 44(3), pp. 505-508, 2009.
59. **P.I Gouma** and K. Kalyanasundaram, "A Selective Nanosensing Probe for Nitric Oxide", *Appl. Phys. Lett*. 93, 244102, 2008.
60. A. S. Haynes and **P.I. Gouma**, "Electrospun Conducting Polymer-based Sensors for Advanced Pathogen Detection", *IEEE Sensors Journal*, 8(6), pp. 701-70, June 2008.
61. L. Wang, A. Teleki, S.E. Pratsinis, and **P.I. Gouma**, "Ferroelectric WO_3 Nanoparticles for Acetone Selective Detection", *Chem. Mater*., 20(15), pp. 4794-4796, 2008.
62. C. Balazsi, L. Wang. E.O. Zayim, I.M. Szilagyi, I.Miklos, K. Sedlackova, J. Pfeifer A.L. Toth, and **P.I. Gouma**, "Nanosize hexagonal tungsten oxide for gas sensing applications", J. Eur. Ceram. Soc., 28(5), pp. 913-917, 2008.
63. K. Ramachandran and **P.I. Gouma**, "Electrospinning for Bone Tissue Engineering", *Recent Patents on Nanotechnology*, 2(1), pp. 1-7, 2008.
64. D. Rubenstein, D. Han, S. Goldgraben, E. El-Gendi, **P. I. Gouma** and M.D. Frame, "Bioassay chamber for angiogenesis with perfused explanted arteries and electrospun scaffolding", *Microcirculation*, 14 (7), pp. 723-737, 2007.

65. K. Sahner, **P. Gouma**, and R. Moos, "Electrodeposited and sol-gel precipitated p-type $SrTi_{1-x}Fe_xO_3$-delta semiconductors for gas sensing", *Sensors*, 7(9), pp. 1871-1886, 2007.
66. A. Bishop-Haynes and **P. Gouma**, "Electrospun polyaniline composites for NO_2 detection", *Materials and Manufacturing Processes*, 22 (5-6), pp. 764-767, 2007.
67. U. Wang, J. Pfeifer, C. Balaszi, and P.I. Gouma, "Synthesis and Sensing Properties to NH_3 of hexagonal metastable nanopowders" *Materials and Manufacturing Processes*, 22 (5-6), pp. 773-776, 2007.
68. G. Wang, Y. Ji, L.H. Zhang, Y.M. Zhu, and **P.I. Gouma**, "Synthesis of Molybdenum Oxide Nanoplatelets during Crystallization of the Precursor Gel from It's Hybrid Nanocomposites", *Chemistry of Materials*, 19(5), pp. 979-981, 2007.
69. Cs. Balázsi, K. Kalyanasundaram, E.O. Zayim, J. Pfeifer, A,L. Tóth and **P.I. Gouma**, "Nanosize tungsten oxide for electrochromic and sensing applications realized by soft chemical routes, *Acta Metallurgica Slovaca*, 13, pp.186-190 (2007).
70. S.Y. Gadre and **P. Gouma**, "Biodoped Ceramics: Synthesis, Properties And Applications", *J. Amer. Ceram. Soc*. - *Invited Feature Article*, 89 (10), pp. 2987-3002, 2006.
71. **P. Gouma**, A. Bishop and K.K. Iyer, "Single Crystal Metal Oxide Nanowires as Bio-Chem Sensing Probes", *Rare Metal Materials Engineering*, 35, pp. 295-298, 2006.
72. K. Kalyanasundaram and **P.I. Gouma**, "Processing and Characterization of Nanostructured Metal Oxides for Gas Sensing Applications", *Transactions of the IEE of Japan-Transactions on Sensors and Micromachines (Section E)*, *Invited Paper*, vol. 126-E, No. 10, pp. 560-567, 2006.
73. **P. Gouma**, K. Kalyanasundaram, and A. Bishop, "Electrospun Single Crystal MoO_3 Nanowires for Bio-Chem sensing probes", *Journal of Materials Research*, *Nanowires and Nanotubes special issue*, 21(11), pp. 2904-2910, 2006.
74. M. Karadge, Y-W. Kim and **P I. Gouma**, "Synergistic precipitation strengthening in TiAl alloys", *Applied Physics Letters*, 89(18), art. No. 181921, 2006.
75. A. Bishop, Cs. Balazsi, J. Yang and **P. Gouma**, "Biopolymer-Hydroxyapatite composite coatings prepared by electrospinning", *Polymers for Advanced Technologies*, 17(11-12), pp. 902-906, 2006.
76. D. Han and **P. I. Gouma**, "Electrospun Bio-Scaffolds that Mimic the Topology of Extracellular Matrix", *Nanomedicine:* , 2, pp. 37-41, 2006.
77. **P.I. Gouma**, A. K. Prasad, and K.K. Iyer, "Selective Nanoprobes for `Signaling Gases`", *Nanotechnology*, 17, pp. S48-S53, 2006.
78. A. Teleki, S.E. Pratsinis, K. Kalyanasundaram (Iyer), and **P.I. Gouma**, "Sensing of organic vapors by flame-made TiO_2 nanoparticles", *Sensors Act. B*, 119(2), pp. 683-690, 2006.
79. K. Sawicka and **P. I. Gouma**, "Electrospun composite nanofibers for functional applications", *J. Nanoparticle Research*, 8(6), pp. 769-781, 2006.
80. G.A. Wang, Y.A. Ji, X.R. Huang, X.Q. Yang, **P.I. Gouma**, and M. Dudley, "fabrication and characterization of polycrystalline WO_3 nanofibers and their application for ammonia sensing", *J. Phys. Chem. B*, 110(47), pp. 23777-23782, 2006.

81. K.M. Sawicka, A.K. Prasad and **P.I. Gouma**, "Metal Oxide Nanowires for Use in Chemical Sensing Applications", *Sensor Letters* (3), pp. 1-5, 2005.
82. A. Bishop and **P. Gouma**, "Leuco-emeraldine based polyaniline-poly-vinyl-pyrrolidone electrospun composites and bio-composites: a preliminary study of sensing behavior", *Rev. Adv. Mater. Sci*, 10 pp. 34-40, 2005.
83. **P. Gouma**, "Nanostructured Oxide-based Selective Gas sensor Arrays for Chemical Monitoring and Medical Diagnostics in Isolated Environments", *Habitation Journal*, vol. 10 (2), pp. 99-104, 2005.
84. K. M. Sawicka**, P. Gouma**, and S. Simon, "Electrospun Bio-composite Nanofibers for Urea Biosensing", *Sensors Act. B*, 108 (1-2), pp. 585-588, 2005.
85. M. Karadge and **P.I. Gouma**, "A structural aspect of $\alpha(\alpha_2)$ -> lamellar $\alpha_2+\gamma$ transformation in γ-TiAl", *Phil. Mag. Lett.,* 84 (7), pp. 451-459, 2004.
86. M. Karadge and **P. I. Gouma**, "Metastable phase formation during α_2 ($D0_{19}$) to γ ($L1_0$)- transformation in as-atomized γ-TiAl alloy powders", *Applied Physics Letters*, 85(21), pp. 4914-4916, 2004.
87. L. Kovarik, **P.I. Gouma**, C. Kisielowski, S.A. Court, and M. J. Mills, "A HRTEM study of metastable phase formation in Al-Mg-Cu alloys during artificial aging", *Acta Mater.*, 52 (9), pp. 2509-2520, 2004.
88. **P. Gouma**, S. Simon, P. Jha, and K.M. Sawicka, "Bio-composite Oxides for Resistive Detection of Pathogens*",* *Chemical Sensors*, 20, suppl. B, pp. 72-73, 2004.
89. **P.I. Gouma**, "Controlling Gas Selectivity through Polymorphic Selection for Metal Oxide Chemical Detectors", *Chemical Sensors*, 20, suppl. B, pp. 186-187, 2004.
90. M. Jaime Vasquez, G. P. Halada, C.R. Clayton, and **P.I. Gouma**, "Fabrication of Nano-structured Al_2CuMg Thin Films by Femtosecond Pulsed Laser Ablation", *Thin Solid Films*, 458 (1-2), pp. 37-42, 2004.
91. J. Bai, M. Dudley, B. Raghothamachar, **P. Gouma**, B.J. Skromme, L. Chen, P.J. Hartlieb, E. Michaels and J. Kolis, "Correlated Structural and Optical Characterization of Ammonothermally-Grown Bulk GaN*",* *Appl. Phys. Lett*., 84 (17), pp. 3289-3291, 2004.
92. **P. I. Gouma**, "Nanostructured Polymorphic Oxides for Advanced Chemosensors", *Rev.Adv. Mater. Sci*., 5, pp. 123-138, 2003.
93. A.K. Prasad, D. Kubinski, and **P. I. Gouma**, "Comparison of Sol-Gel and RF Sputtered MoO_3 Thin Film Gas Sensors for Selective Ammonia Detection", *Sensors & Actuators B*, 9, pp.25-30, 2003.
94. A.K. Prasad, **P.I. Gouma**, D. J. Kubinksi, J.H. Visser, R.E. Soltis, and P.J. Schmitz, "Reactively Sputtered MoO_3 films for ammonia sensing", *Thin Solid Films*, 436, pp. 46-51, 2003.
95. A.K. Prasad, **P.I. Gouma**, "MoO_3 and WO_3 based thin film conductimetric sensors for automotive applications", *J. Mat. Sci,* 38(21), pp. 4347-4352, 2003, (*Invited Paper, Special Issue on Sensors*).
96. H.W. Zhou, B. G. Kharas, and **P.I. Gouma**, "Microstructure of thick polycrystalline silicon films for MEMS applications", *Sensors & Act. A*, 104 (1), pp. 1-5, 2003.

97. **P.I. Gouma** and M. Karadge,"In-situ observation of carbide and silicide precipitation in C+Si alloyed γ-TiAl", *Materials Letters*, 57 (22/23), pp. 3581-3587, 2003.
98. M. Karadge, Y-W. Kim, and **P. I. Gouma**, "Precipitation Strengthening in K5 series γ-TiAl alloyed with Silicon and Carbon", *Metall. Mater. Trans.*, 34A, pp. 2129-2137, 2003.
99. X. Xu, R. P. Vaudo, G. R. Brandes, J. Bai, **P. I. Gouma**, and M. Dudley, "Chemical mechanical polishing for decoration and measurement of dislocations on freestanding GaN wafers", *Phys. Stat.Sol.,* 0 (7), pp. 2460-2463, 2003.
100. Y. L. Soo, G. Kioseoglou, S. Kim, Y. H. Kao, P. Sujatha Devi, J. Parise, R. J. Gambino, and **P. I. Gouma**, "Local Environment Surrounding Magnetic Impurity Atoms in a Structural Phase Transition of Co-Doped TiO_2 Nanocrystal Ferromagnetic Semiconductors", *Appl. Phys. Lett.* , 81, pp.655-657, 2002.
101. T. Ramgopal, **P. I. Gouma**, and G. S. Frankel, "Role of Grain Boundary Precipitates and SDZ on the Intergranular Corrosion of Aluminum Alloy AA7150", *Corrosion*, 58, 687, 2002.
102. S. Karthikeyan, G.B. Viswanathan, **P. I. Gouma**, V. K. Vasudevan, Y-W. Kim, and M. J. Mills, "Mechanisms and effect of microstructure on creep of TiAl-based alloys", *Mat. Sci. Eng. A*, 329, pp.621-630, Special Issue on Structural Intermetalics, Jun 2002.
103. **P. I. Gouma,** D. J. Lloyd, and M. J. Mills, "Precipitation Processes in Al-Mg-Cu Alloys", *Mater. Sci. Eng.,* A319-321, pp. 439-442, 2001.
104. M. C. Carroll, **P. I. Gouma**, G. S. Daehn, and M. J. Mills, "Effects of Minor Cu Additions on a Zn-modified Al-5083 Alloy", *Mater. Sci. Eng.,* A319-321, pp. 425-428, 2001.
105. **P. I. Gouma** and M. J. Mills, "Anatase to Rutile Transformation in Titania Powders", *J. Am. Ceram. Soc.,* 84 [3], pp. 619-622, 2001.
106. J. L. Searles, **P.I. Gouma**, and R. G. Buchheit, "Stress Corrosion Cracking of Sensitized AA5083 (Al-4.5Mg-1.0Mn)", *Metall. and Mater. Trans*, 32A, pp. 2859-2867, Nov. 2001.
107. J. E. Kertz, **P.I. Gouma**, and R. G. Buchheit, "Localized Corrosion Susceptibility of Al-Li-Cu-Mg-Zn Alloy AF/C458 Due to Interrupted Quenching from Solutionizing Temperatures", *Metall. and Mater. Trans.* , 32A, pp. 2561-2573, Oct. 2001.
108. **P. I. Gouma**, M. J. Mills and K. H. Sandhage, "The Fabrication of Free-Standing Titania-based Gas Sensors by the Oxidation of Metallic Titanium Foils", *J. Am. Ceram. Soc*., 83(4), pp. 1007-1009, 2000.
109. M. C. Carroll, **P. I. Gouma**, M. J. Mills, G. S. Daehn, and B. R. Dunbar, "Effects of Zn additions on the grain boundary precipitation and corrosion of Al-5083", *Scripta Mater.*, 42(4), pp. 335-340, 2000.
110. **P. I. Gouma**, P. K. Dutta, and M. J. Mills, "Structural Stability of Titania Thin Films", *Nanostructured Materials*, 11(8), pp. 1231-1237, 1999.
111. P. K. Dutta, A. Ginwalla, B. Hogg, B. R, Patton, B. Chwieroth, Z. Liang, **P. Gouma**, M. Mills, and S. Akbar, "Interaction of Carbon Monoxide with Anatase Surfaces at High Temperatures: Optimization of a Carbon Monoxide Sensor", *J. Phys. Chem. B*, 103, pp. 4412-4422, 1999.

112. **P.I. Gouma**, M.J. Mills, and Y-W. Kim, "Characterization of the Precipitation Process in a TiAl-based Alloy with Carbon and Silicon Additions", *Phil. Mag. Lett*, 78 (1), pp.59-66, 1998.
113. **P. I. Gouma**, S. A. Akbar, and M. J. Mills, "Microstructural Characterization of Sensors based on Electronic Ceramic Materials", *JOM*, 50 (11), *presented as JOM-e*, Nov. 1998.
114. **P. I. Gouma**, K. Subramanian, Y-W. Kim, and M. J. Mills, "Annealing studies of γ-titanium aluminides alloyed with light elements for creep strengthening", *Intermetallics*, 6, pp. 689-693, 1998.
115. **P. I. Gouma**, S. J. Davey, and M.H. Loretto, "Microstructure and Mechanical Properties of a TiAl-based Powder Alloy Containing Carbon", *Mat. Sci. & Eng.*, 241 (1-2), pp.151, 1998.
116. **P.I. Gouma**, S. Davey, M. A, Ashworth, P.A. Blenkinsop, and M. H. Loretto, "Heterogeneities in Cold Crucible Melted and Gas Atomised TiAl-based Alloys", *Powder Metallurgy*, 40 (2), pp. 135-138, 1997.
117. **P.I. Gouma**, N. Saunders and M.H. Loretto, "Microstructural Evolution and Microsegregation of Gas-atomised Powders of a TiAl-based Alloy", *Materials Science and Technology: MST*, 12, pp. 823-829, Oct. 1996.
118. B. White, A. Deakin, **P. I. Gouma**, and R. Rada, "The Evolution of a University Research Department Facilitated by a Groupware System (MUCH)-An extended Study-Part I", *Leadership and Organization Development Journal*, 18 (4,), Sept. 1997.
119. A.G. Deakin, **P.-I. Gouma**, and R. Rada, "The Plan-Facilitator and the Plan-Document", *Journal of Intelligent Systems*, 4(1-2), pp. 83-111, 1994.
120. A. Michailidis, R. Rada, and **P. I. Gouma**, "A Study of Efficiency in Computer-Supported Collaborative Writing", *Journal of Intelligent Systems*, 4 (1-2), pp. 133-162, 1994.

(Selected) Refereed Conference Papers

121. M. Pawar and **P. Gouma**, "Chevrel Phase compound nanomaterials synthesis via ultra-fast self-propagating high temperature synthesis reaction",International Symposium on Self-Propagating High-Temperature Synthesis, volume XV, 2019.
122. S. Soon and **P.I. Gouma**, "Polymorphic reactions and in-situ single crystal metal oxide nanowire formation in TEM", MS&T 2018, pp.770-776, 2018.
123. G. Jodhani and P.-I. Gouma, "Self-organized 3D networks of tetragonal; $CuFe_2O_4$", MS&T 2018, pp.692-692, 2018.
124. P.I. Gouma, M. Alkhader, and M. Stanacevic, "Metabolic Rate Monitoring and Weight Reduction/Management", Engineering in Medicine and Biology Society (EMBC), 36th Annual Conference of the IEEE, 26-30 Aug 2014, pp. 3184-3187, IEEE, 2014(http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6944299)
125. S. Sood, G. Zheng, and P. Gouma, "High Throughput Synthesis of Ceramic Nanofibers", MRS Proc. Vol. 1659, MRS 2014.
126. **P. Gouma**, S.Sood "3-sensor Array for Hand Held Breath Diagnostic Tool",. MRS Online Proceedings Library / Volume 1522 / 2013.

127. Y. Lin, P. Gouma and M. Stanacevic, "A low-power wide-dynamic-range readout IC for breath analyzer system", 2013 IEEE International Symposium on Circuits and Systems (ISCAS), May 19-23, 2013.
128. P. Gouma and M Stanacevic, "Selective Nanosensor Array Microsystem for Exhaled Breath Analysis", Procedia Eng., 25, pp. 1557-1560, 2011.
129. A. Ambre, M. Stanacevic, and P. Gouma, "Handheld Numerical Prototype for Breath Analyzing Sensor", AIP Conf > Proc. 1362, 159, 2011.
130. **P.I. Gouma**, K. Ramachandran, M. Firat, M. Connolly, R. Zuckermann, Cs. Balaszi, P. L. Perrotta, and R. Xue, "Novel Bioceramics for Bone Implants", Advances in Bioceramics and Porous Ceramics II, eds. R. Narayan, P. Colombo, D. Singh, and J. Salem, Wiley, 2010.
131. L. Wang, J. Pfeifer and **P. I. Gouma**, "Synthesis and sensing property of hexagonal WO_3 metastable nanopowders, ACUN-5 Proceedings (UNSW Sydney Australia), pp.524-528, 11-14 July 2006.
132. A. Bishop and P. Gouma, "Self Assembly in Biologically Synthesized Electrospun Electroactive Polymers, "Electroresponsive Polymers and Their Applications", edited by V. Bharti, Y. Bar-Cohen, Z.-Y. Cheng, Q. Zhang, J. Madden, Materials Research Society Symposia Proceedings, v. 889, 0889-W01-06, Warrendale, PA, 2006
133. A. Bishop, D. Kubinski, and **P. Gouma**, "Polyaniline Based Hybrids for NH_3 Sensing" Proceedings of the 11th International Meeting on Chemical Sensors, IMCS-11, Brescia, Italy, 2006.
134. A. Bishop and **P. Gouma**, "Electrospun Polyaniline Composites for NO_2 Detection", Proceedings of the ACUN-5 International Composites Conference: Advanced, Infrastructure, Natural and Nanocomposites, (UNSW Sydney Australia), 2006.
135. K. K. Iyer, A. K. Prasad, **P. I. Gouma**, "A smart medical diagnostic tool using resistive sensor technology", in Materials and Devices for Smart Systems II, edited by Y. Furuya, J., Su, I. Takeuchi, V. K. Varadhan, J. Ulicny, (Mater. Res. Soc. Symp. Proc. **888**, Warrendale, PA, 0888-V10-10, 2006.
136. G. Wang, X. Huang, M. Dudley, and **P.I. Gouma**, "Electrospun tungsten oxide nanofibers: fabrication and characterization", Proc. "Nanostructured Materials and Hybrid Composites for Gas Sensors and Biomedical Applications", eds. P. Gouma, D. Kubinski, E. Comini, and V. Guidi, Materials Research Society, Warrendale, PA, in print, 2006.
137. **P. I. Gouma**, A. Bishop, K. K. Iyer, "Single Crystal Metal Oxide Nanowires as Bio-Chem Sensing Probes", Proceedings of the 6th East Asia Conference on Chemical Sensors. Guilin, China, 2005.
138. A. Bishop and **P. Gouma**, "Electrospun bio-nano-composites for electronic pathogen detection devices", Proceedings of the International Conference on Bio-Nano-Informatics (BNI) Fusion, 2005.
139. A. Bishop, C.S. Balazsi, and **P. Gouma**, "Hydroxyapatite Biocomposite Coatings Prepared by Electrospinning for Advanced Prosthetics", Proceedings of the 8th International Symposium on Polymers for Advanced Technologies, 2005.

140. D. Han, S. Goldgraben, M. D. Frame and P.I. Gouma, " A novel nanofiber scaffold by electrospinning and its utility in microvascular tissue engineering", *Proc. Mat. Res. Soc. Symp.*, Vol. 845, Warrendale, Pa, 2005 (in print).
141. A. K. Prasad and **P. Gouma**, " Nanostructured Sensor Arrays for Bio-Chemical Detection", *Ceramic Nanomaterials and Nanotechnology III*, Ceramic Transactions, Volume 159, Eds. Songwei Lu, Michael Z. Hu, and Yury Gogotsi, in print, 2004.
142. A.K. Prasad, S. Gadia, and **P. I. Gouma**, " Gas Sensor Arrays Using Nanostructured Thin Films of Molybdenum and Tungsten Oxides", Microsc. Microanal. 10 (Suppl 2), pp. 18-19, 2004 *(invited)*.
143. M. Karadge and **P. I. Gouma**, "On the mechanism of fine lamellar structure formation in g-TiAl powders", ", Microsc. Microanal. 10 (Suppl 2), pp. 314-315, 2004.
144. K. Sawicka, M. Karadge and **P. I. Gouma**, "Oxidation synthesized CuO nanowires for gas sensing applications', ", Microsc. Microanal. 10 (Suppl 2), pp. 360-361, 2004.
145. K. Sawicka, P. **Gouma**, and S. Simon, "Electrospun Biocomposite Nanofibers for Biosensing", in *Chemical Sensors VI: Chemical and Biological Sensors and Analytical Methods*, Eds: C. Bruckner-Lea, G. Hunter, N. Miura, P. Vanysek, M. Egashira, and F. Mizutani, ECS, pp. 354-358, 2004.
146. K. M. Sawicka, A.K. Prasad, S. Gadia, and **P.I. Gouma**, "Processing and Characterization of Nanostructured Metal Oxides and Nanocomposites for Use in Chemical Sensing Applications", Proc. 2nd AIST Int. Workshop on Chemical sensors, pp. 41-49. (Advanced Manufacturing Research Institute, Nagoya, Japan), 2004 *(invited).*
147. P. Jha, A.K. Prasad, K. M. Sawicka, and **P. I. Gouma**, "nanostructured Materials for Sensors", *Proc. Int. Conf. on Nanomaterials: Synthesis, Characterization and Application*, Kolkata, India, Eds. S. Badyopadhyay et al, Tata McGraw-Hill Publishing Company, pp. 105-112, 2004 ***(invited).***
148. P. Jha and **P.I. Gouma**, " Synthesis of bio-doped oxides for urea sensing", Proc. IEEE Sensors 2004 Conference, in print, 2004.
149. J. Bai, G. Dhanaraj, **P. Gouma**, M. Dudley, and M. Mynbaeva, "Porous SiC for HT chemical sensing devices: an assessment of its thermal stability", Materials Science Forum, 457-460 (II), pp. 1479-1482, 2004.
150. **P. Gouma**, E. Comini, and G.Sberveglieri, " Sol-gel processed MoO_3 and WO_3 thin films for use as selective chemosensors", Proc. of SPIE, Int. Symp. on "Microelectronics, MEMS and Nanotechnology", vol. 5275, Eds: D.V. Nicolau, U.R. Miller and J.M. Dell, pp. 68- 75 , 2004.
151. M. Karadge, Y-W. Kim and **P I. Gouma**, "α_2 decomposition and H-carbide/ζ-silicide precipitate evolution in precipitation strengthened FL γ-TiAl", Gamma Titanium Aluminides 2003, Eds: Y-W. Kim, H Clemens and A H Rosenberger, 2003 TMS Annual Meeting and Exhibition, San Diego, California, March 2-6, pp. 437-442, 2003.
152. **P.I. Gouma,** M. Karadge, and Y-W. Kim, "Precipitation strengthening of fully lamellar gamma TiAl alloyed with carbon and Silicon", **Invited paper**, Materials Science Forum, 426-4, 4635-4640, 2003.

153. M. Karadge and **P I. Gouma**, "Observation of structural modulations and formation of H-carbide and ζ-silicides during α_2 to γ transformation in fully lamellar γ-TiAl", Mat. Res. Symp. Proc., Defect properties and related phenomena in intermetallic alloys, Eds : E.P. George, H. Inui, M.J. Mills, G. Eggeler, vol. 753, pp 209-215, 2003.
154. H. Zhou and **P. I. Gouma**, "Microsructure of thick polycrystalline Si films for MEMS applications", Proc. Microscopy and Microanalysis 2002, Eds: E. Voelkl, D. Piston, R. Gauvin, AJ Lockley, GW Bailey and S. McKernan, Cambridge University Press, 2002.
155. L. Kovarik, **P. I. Gouma**, C. Kisielowski, S.A. Court, and M. J. Mills, "High Resolution Transmission Electron Microscopy Study of the Early Stages of Aging in Al-Mg-Cu Alloys", Materials Science Forum, 396-402 (2), pp. 845-850, 2002.
156. J.L. Searles, **P. I. Gouma**, and R.G. Buchheit, "Stress Corrosion Cracking of Sensitized AA5083 (Al-4.5Mg-1.0Mn)", Materials Science Forum, 396-4, pp. 1437-1442, 2002.
157. **P. I. Gouma**, S. Banerjee, and M. J. Mills, "TiO_2-based Gas Sensors as Thick or Thin Films: An Evaluation of the Microstructure", in Ceramic Transactions: Dielectric Ceramic Materials, vol.100, pp. 419-428, 1999.
158. P. Thamboon, S. Yao, **P. Gouma**, and S. A. Akbar, "Solid Electrolyte-Based NO_x Sensors", Ceram. Trans..A, pp. 221-230, 1999.
159. **P.I. Gouma**, K. Subramanian, Y-W. Kim, and M.J. Mills, "Precipitation and Creep Strengthening Mechanisms in K5 Series γ-TiAl Alloys", in High Temperature Ordered Intermetallic Alloys VIII, MRS Symp. Proc. Series, vol. 552, Eds. E. P. George, M. J. Mills, and M. Yamaguchi, KK2.11.1-KK2.11.6, 1999.
160. **P.I. Gouma** and M.H. Loretto, "Electron Microscopy Studies of Gas-Atomised and HIPped Powders of Ti-48Al-2Mn-2Nb", in Institute of Physics Conference Series, vol. 147, ed. D. Cherns, Univ. of Birmingham, U.K., pp. 507-510, 12-15 Sept. 1995.
161. **P.I. Gouma**, M.H. Loretto, S. Davey, M.A. Ashworth, and P.A. Blenkinsop, " The Effects of HIP Processing in Ti-48Al-2Mn-2Nb Gas-atomised Powders", Proc. of the International Conference on Hot Isostatic Pressing, Andover, Massachusetts, p. 243-248, 20-22 May 1996.
162. **P.I. Gouma** and M. H. Loretto, "The Microstructure of a TiAl-based Alloy Produced by the Ingot and Powder-Route", Proc. of the Conf. Titanium '95: Science and Technology, eds. P. A. Blenkinsop, W. J. Evans, and H. M. Flower, Birmingham, UK, p. 550-557, 1995.
163. **P.I. Gouma** and M. H. Loretto, "Analytical Electron Microscopy of a Carbon-Containing Atomised TiAl-based Alloy", Proc. of the Conf. EUREM'96, 26-30 August, Dublin, Ireland, 1996.
164. **P. I. Gouma** and M. J. Mills, "Electron Microscopy of TiO_2-based Thick Films of Gas Sensors", in Institute of Physics Conference Series, vol. 153, Ed. J. M. Rodenburg, pp. 491-494, Cambridge, UK, 2-5 Sept. 1997.
165. S. Banerjee, **P. I. Gouma**, and M. J. Mills, "Microstructural Characterization of Annealed Samples of Pure Yttria using Electron Microscopy", Proc. Microscopy

& Microanalysis Conference, vol 3, suppl. 2, pp. 723-724, Cleveland, OH, Aug. 10-14, 1997.

166. M. H. Jacobs, A. L. Dowson, **P. I. Gouma**, and M. H. Loretto, "Induction Cold Crucible Melting and Pouring of Titanium Alloys for Spray Forming and Gas Atomised Powder Production", International Congress of Electromagnetic Processing of Materials, Paris, Vol.1, pp. 243-248, May 26-29, 1997.

PRESENTATIONS

1) Selected INVITED SCHOLARLY LECTURES AND SYMPOSIA

1.P. Gouma, "A Breath Test for COVID-19", Physics Dept. seminar, University of Maryland-Baltimore County (UMBC), February 2022.

2.P. Gouma, "A Breath Test for COVID-19", MSE dept seminar, OSU, Jan 2021

3.P. Gouma, "A Breath Test for COVID-19", Chemistry Dept seminar, Univ of New Haven, CT, Feb 12, 2021.

4. P. Gouma, "A Breath Test for COVID-19", Ceramics Dept seminar, Rutgers Univ, NJ, Feb 16, 2021.

5.P. Gouma, "A Breath Test for COVID-19", Seminar at AEP, Feb 23, 2021.

6.P. Gouma, "A Breath Test for COVID-19", HACK OH/IO 2020 Nov 2020-invited talk

7.P. Gouma, "A Breath Test for COVID-19", TEDx talk, Feb 2021-to be broadcast on March 14th, invited talk

8.P. Gouma, Plenary Talk, 'Selective Chemical Sensors: The Personalized Health Monitoring Tools of the Future", 17th International Meeting on Chemical Sensors", July 2018, Vienna, Austria.

9.P. Gouma, "Ceramic Nanosensors and Single exhale Breathalyzers for asthma and Flu Monitoring", Invited Talk, 42nd ICACC,Jan. 2018, Daytona Beach, Fl.

10.P. Gouma, *Invited Talk: "Electrospun Nanomedical Nanotechnologies",* MST 16, Oct. 23-27, 2016, Salt Lake City, Utah.

11.P. Gouma, *Invited Talk: "*High-Throughput Electrospinning of Nanofibrous Mats for Water Remediation", 17th International Conference on Experimemtal Mechanics, July 3-7, 2016, Rhodes, Greece.

12.P. Gouma, *Invited Talk:* "Electrospun Nanotechnologies for Personalized Diagnostics and Energy Applications", IC4N 16, June 26-30, 2016, Porto Heli, Greece.

13.P. Gouma, *Invited Talk:* "Personalized Breath-Based Health Monitors", 228th ECS Meeting, Oct 11-15, 2015, Phoenix, AZ.

14. P. Gouma, *Keynote talk:* "Polymorphic Metal Oxides-based Sensors for the Diagnostic Breathalyzer", XXXI Panhellenic conference on Solid State Physics and Materials Science, Sept 20-23, 2015, Thessaloniki, Greece.

15. P. Gouma, *Keynote Talk: Ceramic Biosensors for Breath-based Diagnostics",* Advances in Functional Materials 2015, 29 June – 3 July 2015, Stony Brook University, NY.

16. P. Gouma. *Invited Talk:* "Towards the Single Breath Disease-Diagnosis Breathalyzer", T Sensor Summit for Trillion Sensors Roadmap, Nov.12-13 2014, La Jolla, CA.

17. P. Gouma, *Invited Talk***:** "Selective Chemical Detectors, Biosensors, and Hybrid Nanoprobes" (given by S. Topcu on my behalf), NATO Advanced Research Workshop in Nanotechnology to Aid Chemical and Biological Defence, Sept 25-26, 2014, Antalya, Turkey.

18. P. Gouma, *Keynote Talk*: "Selective Chemosensing and the Diagnostic Breathalyzer", The 28th European Conference on Solid State Transducers-EUROSENSORS 2014, Sept 7-10, 2014, Brescia,Italy.

19. P. Gouma, *Invited Talk: "Metabolic Rate Monitoring and Weight Reduction/Management"* (given by M. Stanacevic on my behalf), 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society- "Discovering, Innovating, and Engineering Future Biomedicine", Aug, 26-30, 2014, Sheraton Chicago Hotels and Towers, Chicago, MI.

20.P. Gouma, "Invited: Nanoceramic Polymorphs for Selective Chemosensors and Diagnostic Breathalyzers", ACerS Richard M. Fulrath Award Symposium: Richard M. Fulrath Award Session, MS&T'13, including ACerS 115th Annual Meeting, Montreal, CA, Oct 2013

21. P. Gouma, "Invited: Ceramic Nanosensor Breathalyzers Detect Disease", *Keynote Talk*, Symposium: G. Biomaterials, Smart Materials, and Structures, The 8th Pacific Rim International Conference on Advanced Materials and Processing, Hilton Waikoloa Village HI, Aug 2013

22. P. Gouma, "Invited: Nanostructured Ceramic Sensors for Breath Diagnostics*", Invited Talk*, The 10th Pacific Rim Conference on Ceramic and Glass Technology including GOMD 2013 - Glass & Optical Materials Division Annual Meeting, Hotel Del Coronado, San Diego, CA, June 2 - 7, 2013.

23. P. Gouma, "Polymorphic Phase Transitions in Nanocrystalline Binary Metal Oxides", *Invited Talk*, 4th IC4N, Corfu Island, Greece, June 16-20, 2013 (given by S. Sood).

24.P. Gouma, "Electrospun Fibrous Biomedical Nanomaterials for Nanomedicine Applications", Invited Talk, MM9.2 session, Fall MRS, Boston, Dec 2011.

25. P. Gouma, "Bio-doped metal oxides for high-throughput biosensors", Invited Talk (given by S. Sood), MST 2011, Columbus, OH, October 2011.

26. P. Gouma, "Single Breath Analysis Diagnostics", Invited Talk (remote presentation), Eurosensors, Athens, Greece, Sept. 2011.

27.P. Gouma, "Ceramic Nanosensor and Breath Analyzer for Point-of-Care Diagnostics", Invited Talk (given by J. Lee), 35th Int. Conf. on Advanced Ceramics & Composites (ICACC), Daytona Beach, USA, Jan 2011.

28. P. Gouma, "Selective Ceramic Chemosensors Based on Polymorph Stability", Invited Talk, (talk given by A. Pagliuca), 3rd International Congress on Ceramics, Osaka, Japan, Nov 2010.

29. P. Gouma, "Ceramic Biosensors for Breathanalysis Diagnostics", Invited Talk, 34th Int. Conf. on Advanced Ceramics & Composites (ICACC), Daytona Beach, USA, Jan 2010.

30. P. Gouma, " Single Breath Analysis Diagnostics: A true nanomedicine application", 2nd Annual Workshop on Breath Analysis, Menlo Park, Nov 2009.

31. P. Gouma, "Nanostructured Metal Oxides for Non-Invasive Diagnostics", Invited Talk, 2nd IC4N: International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems, Rhodes, Greece, June 2009.

32. P. Gouma, "Sensors for Medical Diagnostics", Invited Seminar, PTL Laboratory, ETH Zurich, Switzerland, June 2009.

33. P-I. Gouma, "Nanoparticles as Selective Nanoprobes for Metabolite Detection in Exhaled Human Breath", Invited Talk, Nanotech 2009, Houston TX, May 2009.

34. L. Wand and P. Gouma, "An Acetone Nanosensor for Non-Invasive Diabetes Detection", Invited Talk, ISOEN 2009, Brescia, Italy, April 2009.

35. P. Gouma, "Nanomaterials for Medicine", Invited Speaker, International Symposium on Sensing Technologies for Qualified Analysis, Ochanomizu, Tokyo, Japan, March 2009.

36. P. Gouma, "Nanomaterials for Medicine", Invited Seminar, UVNano, West Virginia University, February 2009.

37. P. Gouma and R. Xue, "Novel Bioceramics for Bone Implants", Invited Talk, 33rd ICACC, Daytona Beach, January 2009.

38. P. Gouma, "Nanomaterials for Medicine", Invited Seminar, Physics Dept, UNICAMP, Campinas, Brazil, November 2008.

39. P. Gouma, "Nanomaterials for Non-Invasive Diagnostics", Invited Seminar, PUC Campinas, Brazil, November 2008.

40. P. Gouma, "Biocomposite Materials for Nanomedicine Applications", Invited Seminar, CENA Institute, USP, Paracicaba, Brazil, November 2008.

41. P. Gouma, "Novel Nanocomosites for Health Monitors and Implants", Invited Talk, 1st IC4N: International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems, Porto Carras, Greece, June 2008.

42. P. Gouma, "Electrospun Ceramic nanocomposites for Biotechnology Applications", Invited Talk, "32nd Int. Conf. on Advanced Ceramics and Composites, Daytona Beach, Jan 2008.

43. P. Gouma, "Novel Nanocomposites for Nanomedicine Applications". Invited Seminar, ETH Zurich, Nov. 2007.

44. P. Gouma, "Electrospun Nanocomposites for Chemosensors and Tissue Engineering", Invited Seminar, Rensselear Polytechnic Institute, October 2007.

45. P. Gouma, "Hexagonal tungsten trioxide for selective sensors", Plenary talk, ACUN-5, University of New South Wales, Sydney, Australia, July 2006.

46. P. Gouma, " Nanostructured Metal Oxides for Gas Sensors and E-Noses", Invited Seminar, NIMS. Tsukuba, Japan, Feb. 2006.

47. P. Gouma, "Metal Oxides for Selective Chemosensors". Invited Seminar, Nagoya University, Nagoya, Japan, Feb. 2006.

48. P. Gouma, "Electrospun Composite Nanowires used in Sensors and Biotechnology", Invited Seminar, AIST, Tsukuba, Japan, Feb. 2006.

49. P. Gouma, "Electrospun Oxide Nanowires for Sensors", Invited Talk, Univ, of Pittsburgh, March 2006.

50. P. Gouma, "Electrospun oxide nanowires and composite nanofibers for sensors and bio-scaffolds", Invited Seminar, Rutgers University, March 2006.

51. P. Gouma, "Bio-doped oxides for selective chemosensors", Invited Talk, Univ, of Connecticut, June 2006.

52. P. Gouma, "Electrospun Nanowires for Selective Chemosensors", Invited Seminar, Department of Mechanical Engineering, Worcester Polytechnic Institute, Dec 2nd, 2005.

53. P. Gouma, "Bio-composite Materials for Selective Chemosensors and their Arrays", Invited Talk, the 6th East Asia Conference on Chemical Sensors, Guilin, China, Nov 6-9, 2005.

54. P. Gouma (given by S. Gadre), "Novel Bio-Composites for Biosensors Based on Resistive Changes", Invited Talk, the 4th IEEE Conference on Sensors-IEEE Sensors 2005, Irvine, CA, USA, 2005.

55. P. Gouma, "Nanostructured Metal Oxides and their Composites for Bio-chemical Sensors and Arrays", Invited Seminar, Linköping University, Sweden Oct 7th, 2005.

56. P. Gouma, "Electrospun Nanowires for bio-chemical sensors and their arrays", Invited Seminar, Stevens Institute of Technology, Septenber 7th, 2005.

57. P.I. Gouma, "Bio-composite Materials for Selective Chemosensors", Invited seminar, USB/BNL Nanoscience Seminar series, Upton, NY,August 10th, 2005.

58. P. Gouma. "Electrospun bio-nano-composites for electronic pathogen detection", Invited Talk, International Conference on Bio-Nano-Information Fusion, Marina del Ray, CA, July 20-22, 2005.

59. P. Gouma, "Biosensors and Electronic Noses", Invited Seminar, University of Connecticut, Storrs, CT , May 24th 2005.

60. P. Gouma, "Processing and Characterization of Nanostructured Metal Oxides and Nanocomposites for Use in Chemical Sensing Applications", Invited Talk, the 2nd AIST International Workshop on Chemical Sensors, Nagoya, Japan, 16 July 2004.

61. P. Gouma, "Processing and Characterization of Nanostructured Materials for Bio/Chemical Sensors", Invited Seminar, Univ. of Cyprus, August 2004.

62. P. Gouma, "Microstructure-Creep Property Relationships in Multicomponent Structural Intermetallic Systems", Invited Seminar, Univ. of Cyprus, August 2004.

63. P. Gouma, "Electrospinning in Tissue Engineering", Invited Seminar, Univ. of Cyprus, August 2004.

64. P. Gouma, "Processing and Characterization of Nanostructured Materials for Bio/Chemical Sensors", Invited Seminar, Research Institute for Technical Physics and

Materials Sciences (MFA), Hungarian Academy of Sciences, Budapest, Hungary, October 28-29, 2004.

65. P. Gouma. "Oxide-Gas Sensor System Selection Process", Invited Seminar, Physics Department, SUNY Stony Brook, October 2004.

66. P. I. Gouma, " Gas Sensor Arrays Using Nanostructured Thin Films of Molybdenum and Tungsten Oxides", Invited Talk, Annual Meeting of the Microscopy Society of America, Savannah, GA, August 1-5, 2004.

67. P. Gouma, "Controlling Gas Selectivity through Polymorph selection for Metal Oxide Chemical Detectors", Invited Talk, 10th International Meeting on Chemical Sensors, Tsukuba, Japan, July 11-14, 2004.

68. P. Gouma, "Nanostructured Materials for Sensors", International Conference on Nano-materials: Synthesis, Characterization, and Application", Invited Talk, Kolkata, India, Nov. 4-6, 2004.

69. P. Gouma, "Nanostructured Metal Oxides for Sensors", Univ. of Brescia, Italy, Invited Talk, July 2003.

70. P. Gouma, "Selective Chemical Detection by Nanostructured Metal Oxides", Invited Talk, Brookhaven National Laboratory, Nov. 2003.

71. P.I. Gouma, M. Karadge and Y-W. Kim, "Precipitation strengthening of fully lamellar γ-TiAl alloyed with carbon and silicon**",** "Invited Paper" for Symposium on Intermetallics, *THERMEC'2003* (International Conference on Processing and Manufacturing of Advanced Materials), Madrid, Spain July 7-11, 2003.

72. P. I. Gouma, D. J. Kubinski, A. K. Prasad, P. J. Schmitz, J. H. Visser, and R. E. Soltis, "MoO_3 films for ammonia sensing: Assessing their sensitivity, selectivity and stability", Invited Talk, *105th Annual Meeting of the American Ceramic Society*, April 2003.

73. P. Gouma, "Selective Biochemical sensors based on Semiconducting Oxides", The *Long Island Technology Hall of Fame* Workshop on "Systems and Sensors for a Safer World", Invited Talk March 2003.

74. P. I. Gouma, "*Structural Stability of Polymorphic Ceramic Oxides"*, Seminar Series, National Center for Electron Microscopy, Lawrence Berkeley National Laboratory, CA, Invited Talk, February 2002.

75. D. Kubinski, A.K. Prasad, and P. I. Gouma, "Thin films of MoO_3 for selective ammonia sensing", presented at the *"III International Seminar on Semiconducting Gas Sensors",* (SGS' 2002), Ustron, Poland, Invited Talk, Sept. 18-22, 2002.

76. P. I. Gouma, "Development and Characterization of Chemical Sensors based on Semiconducting Oxides", *NRL at Stennis Space Center*, MS, Invited Talk July 16-17, 2002.

77. P.I. Gouma, *"Structural Stability of Polymorphic Oxides"*, Seminar Series, Dept. of Materials Science & Engineering, University of Connecticut, Storrs, CT, Invited Talk, September 2001.

2) OTHER (SELECTED) LECTURES AND PRESENTATIONS

1.P. Gouma, "Nanosensors and Breathalyzers for Personalized Diagnostics" International Conference on Nanoscience and Technology (IVC-19 and ICN+T 2013) Paris, France , Sept 2013 (given by J. Lee).

2. P. Gouma, "Electrospun Nanofibers for Biotechnology Applications", Innovations in Biomedical Materials, Raleigh, NC, 2012 given by G. Jodhani)

3. P. Gouma, "Personalized Breath Diagnostics based on Selective Chemosensors", 2012 International Breath Analysis Meeting, Sonoma, CA, October 2012.

4. P. Gouma, "Single Breath Analysis Diagnostics", ECI Exhaled Breath Analysis Conference, Barga, Italy, 2010 (given by G. Jodhani)

5.. Gouma, "Personalized Health Monitoring Tools based on Nanotechnology", Seminar, Chemistry SUNY SB, April 2009.

6. P. Gouma, " An Acetone Breathanalyzer for Diabetes Detection", Endocrinology seminar, SUNY SB, December 2008.

7. P. Gouma and D. Han, "Electro-sculpting for tissue and organ engineering", MRS Spring Meeting, Symposium R, April 2006.

8. P. Gouma, "Urease-Composite Nanofibers as Urea Biosensing Material", MRS Fall Meeting, Symposium O: Nanoparticles and Nanostructures in sensors and Catalysis, Boston, Nov.28-Dec2, 2005.

9. P. Gouma, "Nanostructured Chemosensors for Health and Environmental Monitoring", Environmental Sentinels, Houston, TX, USA, 2005.

10. K.M. Sawicka and P. Gouma, "Bio-composite oxides for resistive detection of pathogens", 10-IMCS, July 2004, Japan.

11. P. Gouma, to present "Nanostructured Sensor Arrays for Bio-Chemical Detection and Medical Diagnostics", symposium on "Nanotechnology for the future: Environment,

Health, and National Security". 106th annual meeting of ACERS 2004, Indianapolis, April 18-21 2004,

12. A. Prasad and P.I. Gouma, "The relationship between the gas sensing response and the phase transitions occurring in MoO_3 and WO_3 thin film detectors", presented at symposium AC1:"Emerging Sensing and Actuating Materials and Technology", 204th Meeting of the Electrochemical Society, Orlando, FL, Oct 12-16, 2003.

13. A.K. Prasad and P. I. Gouma, "Processing Effects on WO_3 thin films for selective NO_2 detection", 105th Annual Meeting of the American Ceramic Society, April 2003.

14. P I. Gouma and A.K. Prasad, "Characterization of Nanostructure Materials for Biosensors", 105th Annual Meeting of the American Ceramic Society, April 2003.

15. J. Bai, M. Dudley, P. I. Gouma, and M. Mynbaeva, "Studies of pore morphology modification in Porous SiC during HT processing", Session on SiC growth and characterization, 2003 TMS Electronic Materials Conference.

16. J. Bai, M. Dudley, P. I. Gouma, and M. Mynbaeva, "Characterization of post-epilayer growth anodized GaN/SiC heterostructi\ures", 2003 TMS Electronic Materials Conference.

17. P. I. Gouma, "Oxide-based Chemical Sensors for the Rapid Detection of Bio-/Chemical Species", presented at the NASA Workshop on *"Environmental Sentinels",* Johnson Space Center, Houston, TX, Sept. 17-18, 2002.

18. M. Karadge and P.I. Gouma, "Structural modulations and microscopic origin of Ti_2AlC during α_2 -> γ transformation in FL γ-TiAl", MRS Symposium BB : *"Defect properties and related phenomena in Intermetallic Alloys"*, MRS Fall Meeting, 2-6 Dec. 2002, Boston, MA.

19. M. Karadge, P. I. Gouma, and Y-W. Kim, "Effect of aging on creep in K5 Gamma alloys with/without carbon content", presented at the 131st TMS Annual Meeting in the symposium on *"Fundamentals of Structural Intermetallics: High Temperature Strength of TiAl",* Seattle, WA, Feb 17-21 2002.

20. L. Kovarik, P. I. Gouma, S. A. Court, and M. J. Mills, "Microstructural Study of the Mechanism of Rapid Aging in Al-Mg-Cu Alloys", presented at the 131st TMS Annual Meeting in the symposium on *"Automotive Alloys 2002-II",* Seattle, WA, Feb 17-21 2002.

21. P. I. Gouma, "TEM characterization of SiC growth on porous SiC substrates", presented at the ONR Workshop on *"Challenges in Porous and Amorphous Wide Gap Semiconductors*", June 2001, Newfoundland, Canada.

22. P.I. Gouma, D. Lloyd, and M. J. Mills, "Precipitation Strengthening in Al-Cu-Mg alloys", presented at the "*12th International Conference on the Strength of Materials* (ICSMA-12)", Sept. 2000, Asilomar, CA, USA.

23. P. I. Gouma, " Anatase-to-rutile transformation in nanocrystalline materials for sensors", presented at the 102nd Annual Meeting of the American Ceramic Society, *Symposium on Sensors*, 2000, St.Louis, MO, USA.

24. P. I. Gouma, " TiO_2-based CO Sensors", presented at the 101th Annual Meeting of the American Ceramic Society, *Symposium on Sensors*, 1999, Indianapolis, IN, USA.

25. P. I. Gouma and M. J. Mills, " Characterization of the microstructure of $SrTiO_3$-based materials for oxygen sensors using electron microscopy", presented at the Engineering Foundation Conference on *"Non-Stoichiometric Ceramics and Intermetallics",* 1998, Kona, HI, USA.

PROFESSIONAL SERVICE

COMMITTEE SERVICE

The Ohio State University

Member of the Promotion and Tenure Committee (2022-to-date)
Member of the Awards Committee (2020-to-date)
Member of the MSE department Graduate Studies Committee (2017-2019)
Member of the Lab Facilities Committee (since 2017)
Chair of the Lab Facilities Committee (2018-2019)
Member of Dean's CIC
Member of the COE's Research Committee (since 2019)
Member of COE's Dean Search Committee (2020)
Member of the Search Committee for Microscopy Faculty (2021-2022)
Senate IP committee (2021)
University Senator (2022)
Chair of IPPC Committee (2022)
Member of the Senate's Honorary Awards Committee) (2022)
Reviewer for Scarlet and Gray Associate Professor Program-COE (2022)

University of Texas at Arlington

Faculty Search Committee in MAE (2016-2017)
Faculty Search Committee in MSE (2016-2017)
Associate Dean for Research Search Committee (2016-2017)

SUNY Stony Brook

Department of Materials Science & Engineering
Graduate Program Committee (2000-2016)
Advisor of the Materials Science Club (2001-2002)

Crystal Growth Faculty Search Committee
Dept. representative at University Senate (2002-2003)
Library Liaison (2002-2003)
Examiner –Qualifier Exam (2002)
WISE committee-Departmental representative (2002)
Member of preliminary exam / thesis defense committees (2000-present)

College of Engineering

Search committee for Associate Dean for College of Engineering (2002)
SIMONS fellows committee-College representative (2001-2016)
URECA committee-College representative (2001-2016)

University

IAPS Advisory Committee (2012-2016)

COMMUNITY SERVICE

• **External Evaluator, PPT Committee, Physics Dept., Univ. of Athens, Greece** (2019)
• **Chair of the Accreditation Committee** evaluating the Dept of Materials, Univ of Patras, Greece, 2019
• **Spriggs Phase Equilibria Award**-Selection Committee (ACERS) 2018
• **Mason Award Jury-Selection Jury for Women in the Chemical Sciences Grants (**2016/ 2015/ 2018**) invited by AAAS**
Fulbright US scholar Program-Brazil
Member IEEE Wearable Biomedical Sensors and Systems Technical Committee
Reviewer for The Research Competitiveness Program at the American Association for the Advancement of Science (AAAS) for the King Abdulaziz City for Science and Technology (KACST), which is the national science agency of Saudi Arabia
• Tenure committee member Physics dept, Univ of Athens, Greece
• PPT committee member, Physics dept., Univ.of Thessaloniki, Greece
• Rice University Business Plan Competition Finalist, April 14-16, 2016
• *Board Member* of Maritime Explorium, Port Jefferson, NY
* Member of WBSS committee of IEEE

• *Editorial*

Guest Editor of Special Issue of the *MRS Bulletin* on Novel materials for E-Noses, volume 29, issue 10, 2004.

Guest Editor of Special Focus Issue of the *Journal of Nanoparticle Research* on Nanomaterials for Biochemical Sensors, volume 8, issue 6, 2006.

Article reviewing for many different journals, including:
• Journal of the American Ceramic Society (Associate Editor)
• Sensors (Associate Editor)
• Journal of Materials Research-JMR
• Journal of Materials Science & Engineering A
• Sensors and Actuators A
• Sensors and Actuators B

• Journal of Thermal Spray Processes
• Scripta Materialia
• Journal of Materials Science
• Analytical Chemistry
• Biomacromolecules
• Nanotechnology

Proposal Review
National Science Foundation (NSF) (both individual, panel, and site reviews)
Department of State, Fulbright Program to Brazil
American Association for the Advancement of Science awards
American Chemical Society- Petroleum Research Fund
Science Center Programs of US Dept. of State
L'Oreal Foundation
AAAS KACST reviews
Fulbright Scholar Program
Fulbright-Hays Program (National Screening Committee for US students)
BNL CFN proposal reviewer

MEMBERSHIP IN PROFESSIONAL SOCIETIES (over the years)
Member of the American Ceramic Society (ACERS)
Member of The Institute of Electrical and Electronic Engineers (IEEE)
Member of International Society for Olfaction and Chemical Sensors (ISOCS)
Member of the American Association for the Advancement of Science (AAAS)
Member of The Metals, Minerals, and Materials Society (TMS)
Member of Materials Research Society (MRS)
Member of the Microscopy Society of America (MSA)
Member of the American chemical Society (ACS)
Member of the American Society for Metals (ASM)
Member of the ISOCS
Member of the Fiber Society

ORGANIZING OF SCIENTIFIC MEETINGS

- Founder of the **Orton Workshop Series** on Ceramics-Organizer (together with M. Lawson of the Orton Ceramic Foundation) of Inaugural Workshop on "High Temperature Ceramics for Extreme Environments Workshop – held in Columbus, OH on June 18 & 19, 2019.

- **Co-Organizer and Chair**, **ECI: Fibrous Protein Nanocomposites Conference**, Daios Hotel, Crete, October 2012.

•**Organizer and General Chair**, **ISOEN 2011** Conference, May 2-5 NYC, NY.
  - Technical Program Committee member: International Symposium on Olfaction and Electronic Nose, April 15-17, 2009 ISOEN 2009 Brescia Italy,
  - North and South America Regional Committee Member, IMCS-12, 12th International Meeting on Chemical Sensors, July 2008.

- 2007 Organizer (with Molly Frame) of Symposium on *Nanomedicine* at the CFN UEC's Meeting, BNL, May 2007.
- 2007 co-Organizer of *Symposium on Sensors* at ACERS Cocoa Beach Meeting, Florida.
- 2007 and 2006 co-Organizer: Symposium on "*Nanomaterials and Hybrids for sensors*", MRS Spring Meeting, San Fransisco, CA
- 2004 Organizer: Symposium on "*Characterization of Novel Nanostructures for Applications in Sensing, Nanoelectronics and Biotechnology*", Microscopy and Microanalysis Conference 2004, Savannah, GA
- 2004 co-Organizer: Symposium on "*Silicon Carbide-Materials, Processing, and Devices*", MRS Spring Meeting, San Fransisco, CA
- 2003 Organizer: Symposium on *"Oxide-based Chemical and Bio-chemical Sensors"*, ACERS annual meeting
- 2002 co-Organizer: Workshop on "Nanoscience and Nanotechnology at Stony Brook" Workshop, with Prof. Phil Allen.

OTHER PROFESSIONAL MEETINGS ATTENDED

2022 NSF Workshop on 2D Materials organized by the MIPs (online)
2021 NSF PREPARE team and the RP2 Program Committee, Dec 3rd, online
2007 AAAS WISC Workshop, Washington DC
2004 NSF Nanoscale Science & Engineering Grantees Meeting, Arlington, VA
2003 NSF Nanoscale Science & Engineering Grantees Meeting, Arlington, VA
2003 Sukant Tripathy Annual Memorial Symposium, U. Mass. Lowell, MA
2003 CEWIT 2003: Business Without Boundaries: A full day wireless technology event, conference, and expo, Crest Hollow Country Club, Woodbury, NY
2003 Nanotechnology and the Environment: Applications & Implications, National Nanotechnology Inititative Interagency Meeting, Alington, VA
2003 FORWARD to Professorship, Spring 2003 Workshop, Gallaudet Univ, DC
2003 The *Long Island Technology Hall of Fame* Workshop on "Systems and Sensors for a Safer World", NY
2002 An Exploration of Technical Communication in Engineering: A One Day SUNY-Wide Symposium, SUNYSB
2002 Ethic Within The Engineering Profession: A One Day SUNY-Wide Symposium, SUNYSB
2002 Planning Workshop for the BNL Center for functional nanomaterials, BNL, NY
2002 Federal funds for R&D: How SBIR program can help you succeed, SUNYSB

OUTREACH

Upon publication of the research findings of the work that I have been leading on the breath-based diagnosis of SARS-COV-2, rapidly, within 15 seconds, using a single exhale, (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0257644) there has been unprecedented interest by both the scientific community and the layman

community at large, to learn about this achievement: the first ever catalytic sensor and breathalyzer system for an infectious disease (i.e. the current pandemic).

There have been 44 reports across 43 news outlet all over the world on this publication alone (https://plos.altmetric.com/details/115912886/news).

Other press releases on this technology have been made by prestigious publications and radio stations (by 11/01/2021): A COVID 'breathalyzer': Not all hot air? MedPage Today Online audience: 700,592; MSN Online audience: 67.2 million;WEPM-AM (Washington, DC + 63 airings via ABC Radio News)Total broadcast audience: 2.4 million;MedicalXpress Online audience: 1.1 million; Columbus Dispatch Online audience: 495,461 Print audience: 84,419; WTTE-TV/28 Online audience: 35,536; WSYX-TV/6 Online audience: 257,204; WSYX-TV/6; Broadcast audience: 25,853; WFMJ-TV (Youngstown); Online audience: 150,163; WBNS-TV/10 Broadcast audience: 24,135; WCMH-TV/4 Broadcast audience: 19,754; WLWT-TV (Cincinnati) Online audience: 395,054.

There have also been more news following: **A new breathalyzer test can identify Covid-19 in critically ill patients, researchers find** -Washington Post Online audience: 26.5 million; HuffPost -Online audience: 10.3 million ;Yahoo! (via HuffPost) Online audience: 149.3 million; Everyday Health Online audience: 3.9 million; HealthDay Online audience: 142,708; U.S. News & World Report (via HealthDay) Online audience: 15 million; Drugs.com (via HealthDay) Online audience: 6.3 million ; Newsmax Health Online audience: 1.2 million ; WKRC-TV (CBS, Cincinnati) Online audience: 224,177 ; Spectrum News 1 Online audience: 188,589 ; Tech Times Online audience: 384,091 ; Technology Networks Online audience: 352,925 ; ArcaMax Online audience: 232,491 ; WSNY-FM/Sunny 95 Audience not available ; WNND-FM/Rewind Columbus Online audience: 200 ; HealthNewsDigest Online audience: 1,695; HospiMedica International Online audience: 21,841; WOSU-FM/NPR Online audience: 88,902; Ideastream Online audience: 51,592; WCPN-FM (NPR, Cleveland) Online audience: 2,206; Medical Device Network ; Lima News Online audience: 52,330; Compsmag Online audience: 30,201; Highland County Press Online audience: 12,127; WZRR-FM (Birmingham, AL); Ohio News Time , among others.

•NSF has created several multimedia press releases on this work:
NSF.gov: *The Discovery Files* ***15-SEC COVID TEST!***
https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=303896&org=NSF&from=news
https://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=187810&from=

• India's leading Science and Technology Innovation publication referred to my work work: 'Just Breathe Out", https://shaastramag.iitm.ac.in/lead-story/just-breathe-out;

•TV and radio programs, major newspapers and magazines featured my research in Greece (Ethnos newspaper, Open TV, Alpha TV, Elle Greece magazine, etc.)

• My **TEDx talk "COVID-19: Test Results Within One Breath"** has reached almost 40,000 views since August 2021 (https://www.youtube.com/watch?v=mHKvRE7WMLg)

• I was featured in Dean Howard's Enginuity Podcast, January 24, 2022: "Breathing innovation into medical diagnostics" https://podcasts.apple.com/us/podcast/ep-4-breathing-innovation-into-medical-diagnostics/id1590546820?i=1000548846964

I was asked to give interviews to numerous media outlets, from a morning radio program in San Franscisco to the NPR, where I described what the job of a materials scientist and engineer is and how it is possible to make better and easier diagnostics for medical applications by monitoring the gases emitted from the breath resulting from metabolic changes caused by the infection, using advanced sensor technology and device engineering. I have also referred to the importance of interdisciplinary research and how engineering can impact health and environmental sciences. I have exceeded the reach of my expertise and have made my work known widely so now kids and families realize that engineers play a role in keeping the community healthy by providing novel and rapid diagnostic tools for disease detection. I have made a positive impact in many different perspectives: spreading the word about her discipline and engineering overall; demonstrating the products of my research and how these revolutionize personalized diagnostics; I have gone outside my comfort zone to become an ambassador for my profession, my research, my collaborations, and my Institution.