

# University of Houston

**Francisco C. Robles Hernandez, PhD**

**Associate Professor**

**Mechanical Engineering Technology Department**

**College of Technology, University of Houston**

**304 Technology Building, Houston TX, 77204**

**Joint Appointments:**

**Electrical and Computer Engineering and**

**Materials Science and Engineering**

**Adjunct Faculty:**

**Rice University – Materials Science and Nanoengineering**

**<http://sites.tech.uh.edu/materials-technology-group/>**

## ***Brief Biography***

I have a Bachelor, a Master and a PhD of Science degrees in Metallurgy and/or Materials Science and Engineering. During my education I was the recipient of several prizes and fellowships for more than \$120,000. Before joining the university I worked in the industry for several years. I joined the University of Houston in 2008, and become Associate Professor in 2014. My record of publications is approximately 280 documents including 4 patents (1 provisional), 3 books, 3 book chapters, 3 times invited editor (2 more in process), 90 peer review papers, 25 proceedings, 129 conference participations, 19 industrial reports (with ISBN) among others. I have papers in some of the most prestigious journals (e.g. Nature Nanotechnology, Advanced Materials, etc.). My funding record since 2005 is approximately 5.4 MUSD (Prior to UH: 2.5 M, at UH: 2.9 M) from various sources mainly the industry, the Federal Railroad Administration, Association of the American Railways, McAda Fluids, NSF, the University of Houston, Government of Mexico, among other sources. I have gained international recognition by been invited as a Keynote Speaker to international conferences in two countries and my articles have been cited in at least 68 countries and awarded several best paper awards (e.g. IHHA conference in China). I specialize in the following areas: Nanostructured Materials, Structural Materials and Alloys, Composites, Catalysis, Transmission Electron Microscopy, and in general materials for energy applications. My record as a supervisor or co-supervisor is of approximately 20 graduate Thesis or Dissertations. Most recently, I negotiated a 25 MUSD gift/investment to the University of Houston.

## Education

### **University of Windsor, Windsor Canada 2004**

Ph.D. in Materials Science and Engineering

**Dissertation:** Improvement of the Functional Characteristics of the Al-Si Cylinder Liners through the Utilization of Melt Treatment with the Novel Electromagnetic Technology

### **Instituto Politécnico Nacional, Mexico City, Mexico**

Master in Materials Science and Engineering 1999

**Thesis:** Production and Characterization of Composites Metal-C (where Metal= Fe or Al and C= Graphite or Fullerene) Obtained from Mechanically Alloyed Powders

### **Instituto Politécnico Nacional, Mexico City, Mexico**

Bachelor in Metallurgical Engineering 1996

## Work Experience

### **Rice University - Materials Science and Nanoengineering**

Adjunct Appointment 2019 to date

Visiting Scholar 2018 to date

### **University of Houston**

Member of NSF I/UCRC BRAIN University of Houston Site 2018 to date

Adjunct faculty in Electrical and Computer Engineering 2017 to date

Adjunct Faculty in Materials Science and Engineering 2017 to date

Associate Professor (College of Technology) 2014 to date

Member of the Center of Advanced Materials (CAM) 2013 to 2017

MS Program Coordinator (Technology Department) 2009 to 2014

Assistant Professor (Technology Department) 2008 to 2014

### **Transportation Technology Center Incorporated (TTCI)**

Principal Investigator/Project Manager 2005 - 2008

TTCI is the most advanced research large scale facility for the railroad industry and transit. Duties related to materials characterization, testing and physical metallurgy.

## ***NSERC/FORD-NEMAK/University of Windsor IRC***

Research Assistant

2000 - 2004

Cause root failure, mechanical testing, materials characterization, casting of light metal alloys. Design of prototype engine block for the V6-FORD engine. Extensive work in Chromatography (ICP-OES, ICP-MS, AA), metallography, crystallography, etc.

## ***IPN/Centre for Processing of Minerals and Advanced Materials***

Research Assistant

1997 - 1999

Laboratory dedicated to solve industrial problems through the use of state-of-the-art Materials Science methods. Additionally, I was involved in the operation and use of electron microscopy including scanning, transmission and Auger.

## **Accomplishments**

### ***National Researcher's Systems (SNI), Mexico Level II***

- Honorary equivalency to an Associate Professor

## ***Grant Funding***

- **Total career funding: 5.4 MUSD**
- **Total funding while at the University of Houston: \$ 2.9 MUSD**
- Best paper award at the International Heavy Haul Association in Shanghai, China, June 22-25, 2009,
  - The manuscript and presentation was based on work conducted at the Transportation Technology Center, Inc., the manuscript and presentation were made while at the University of Houston,
- Plenary Speaker: CoSAAMI 2019, Advanced Materials Initiative, Vanderbijlpark South Africa
- Keynote Speaker: SAIMM-South Africa, Magaliesburg 2012,
- Keynote Article: Metallurgy of High Carbon Steels for Railroad Applications, SAIMM-South Africa, Magaliesburg 2012,
- Keynote Speaker: "V Congreso Internacional de Metalurgia y Materiales", Mexico, Monclova Coah. 2011,
- Graduate supervisor in 15 MS thesis, and 3 PhD students
- Two Master of Science (MS) students expected in 2020 and 2022,
- Four PhD students in progress,
- Restart the MS program in Mechanical Engineering Technology at the College of Technology in 2009,
- MS Program Coordinator (graduate advisor) from 2009 through 2014,  
*Note: before 2009 the Department of Mechanical Engineering Technology at the College of Technology did not have a graduate program. Currently the terminal degree is MS and there is no Doctorate (e.g. PhD) degree yet,*
- Invited to join the Center for Advanced Materials at UH in 2013,
- ~290 publications (journals, conferences, proceedings, reports, patents, etc.),
- Two patents for steel design approved, one patent submitted, not approved,

- The patents were filed while at the Transportation Technology Center, Inc. and granted while I was at the University of Houston.
- One provisional patent: on Ruby and sapphire synthesis
- One Patent on Carbonaceous Materials,
  - Two in process,
- Google Scholar: 144 documents with ~2020 citations, H factor = 20, i10 factor = 32
- Scopus: 85 documents, citations: ~1585 citations, H factor = 18,
- Reviewer for 30+ journals,
- Editor of 3 book proceedings at the IMRS conference edited by MRS,
- One major book on Al-Si alloys. As of October 2019, the book sold ~8,500 chapter copies
- Supervise professionals with different backgrounds, from PhD to technician level,
- Report writing for a materials failure used in a multimillion dollar litigations,
- Awards (scholarships, fellowships, prizes, etc.) for more than 120,000 USD,
  - Those awards were given during my studies from bachelors to PhD degrees,
- Reviewer for six international Science Agencies (Romania, Netherlands, and USA),

**Professional Associations (Not all current)**

- Sociedad Mexicana de Cristalografia
- The Minerals, Metals and Materials Society (TMS),
- American Chemical Society (ACS),
- Materials Research Society (MRS),
- American Society of Mechanical Engineers (ASME),
- The American Standard Testing Materials (ASTM),
- American Society of Metals (ASM),
- The American Railway Engineering and Maintenance of Way Association (AREMA)

1. Teaching and Student Learning

a. **Courses Taught**

Catalogue	Description
MECT 4372	Materials Technology*
MECT 4172	Materials Technology Lab*
MECT 3355	Strength Materials Lab*
MECT 4341	Materials Selection and Management*
MECT 4398	Special Problems (Independent Study)*
MECT 4343	Thermomechanical Processing of Materials*
MECT 6340	Materials Selection and Management‡
MECT 6342	Thermomechanical Processing of Materials ‡
MECT 6397	Sel Tops-Manufacturng Sys Tech (Independent Study)‡
MECT 6399	Thesis‡
MECT 6370	Research and Applications in Manufacturing‡
MECT 6396	Master's Project‡
Visiting Lecturer	Advanced Methods of Characterization and Analysis Length: 30 hours
Visiting Lecturer	Advanced Methods of Characterization and Analysis for Steel Length: 40 h
* Undergraduate course	
‡ Graduate course	

**b. Graduate Advising Participation**

Student	Thesis	Grade	Year
A. D. K. P. Savio* <sup>‡</sup> (India)	Characterization Protocol for Titanium dioxide (Anatase: Rutile) Use for Photocatalytic Applications	M.Sc.	2011
D. A. Barber* <sup>‡</sup> (USA)	Cost-Effective Thermomechanical Synthesis and Characterization of Complex Carbon Nanostructures for Structural Applications	M. Sc.	2013
D. A. Barber* <sup>‡</sup> (USA)	categorizing the process that produced particular structures	M. Sc.	2013
F. Cortes Vega <sup>†</sup> (Mexico)	Synthesis and Characterization of Doped Alumina with Cr <sup>+3</sup> Ions and Reinforced Using sp <sup>2</sup> bonded Carbon Nanostructures	Ph.D.	2017
O. A. Herrera Sanchez <sup>†‡</sup> (Mexico)	Synthesis of Al6061-Carbon Fibers and its numerical and experimental analysis	M. Sc.	2015
A. Okonkwo* <sup>‡</sup> (Nigerian)	Engineering Carbon Nanostructures in Solid State	M. Sc.	2014
A. Okonkwo* <sup>‡</sup> (Nigerian)	Laser Processing to Improve Track Safety, Ridership Safety and Efficiency	M. Sc.	2014
O. Eytayo M.* (Nigerian)	Growth and Synthesis of Carbon Nanotubes by Chemical Vapor Distribution on Alumina Substrates and their Reinforcing Effect for Structural Composites	M. Sc.	2013
O. Eytayo M.* <sup>‡</sup> (Nigerian)	A Comparison of different Sintering methods in the development of Al <sub>2</sub> O <sub>3</sub> nanostructured composites reinforced with carbon nanostructures	M.Sc.	2014
J. Nguyen* <sup>†‡</sup> (Vietnam)	Prevalence of Carbon Nanotubes in Irradiated Foods and the Potential Impact on Health	M.Sc.	2015
A. Reddy Erra <sup>†‡</sup> (India)	Carbon nanostructures for highly efficient rechargeable batteries.	M.Sc.	2015
A. Tejada Ochoa <sup>†‡</sup> (Mexico)	Synthesis of Silicate from Soils Rich in SiO <sub>2</sub> for Applications as Geopolymers	M.S.	2015
I. Estrada Guel <sup>†</sup> (Mexico)	Synthesis and characterization of nanostructured particles and its dispersion as effective reinforcements for composites	Post-Doct.	2015
Dr. J. M. Herrera Ramirez (Mexico)	Synthesis and analysis of chitosan composites with carbon nanostructures by means of mechanical milling and sintering.	Supervisor	Sabbatical year
O. I. Perez Ordonez <sup>†</sup> (Mexico)	Synthesis and structural and mechanical analysis of a geopolymeric paste	M.Sc.	2016
O. Velazquez Meraz <sup>†</sup> (Mexico)	Synthesis and characterization of chitosan composites reinforced with carbon nanostructures	M.Sc.	2016
W. Yang* (China)	Low Temperature Synthesis Sapphire and Ruby and Their Optical Applications	Ph.D.	2019

M. Singh* (India)	Water Remediation by means of Co-Ti-O Photoactive Composites Having Enhanced Sunlight Activity	M.Sc.	2018
Nikhil Chaudhari* (India)	Morphed Graphene a unique alternative for Al and Cu Based Covetic Materials	Ph.D.	2021
Miad Yarali† (Iran)	Use of mechanical vibration for life extension on welds	Ph.D.	2021
M. Shirazi† (Iran)	IR Spectroscopy Application In Studies of Electrochemical Adsorption of Hydrogen on Monolayer Catalyst	Ph.D.	2021
K. Ahmadi† (Iran)	Electrochemical Synthesis of Functional Coatings	Ph.D.	2021
A. Raghata† (India)	Applications and Properties of Sustainable and Biodegradable Composites Reinforced with Morphed Graphenes	MS.C	2020
* Direct supervisor ‡ Degree completed † Students supervised in collaboration (Mexico) indicated students and professionals financed by Mexican Government-CONACyT			



**c. Graduate Committees**

Student	Thesis	Grade	Year
S. Prakasan <sup>‡§</sup>	Characterization of CVD Grown Monolayer and Few Layer Graphene using Microwave Dielectric Resonator	M.Sc.	2016
R. Mekala <sup>†‡§</sup>	Synthesis and characterization of scalable high permittivity core-shell ferroelectric polymers for energy storage solutions	M.Sc.	2013
K. Farokhzadeh <sup>‡§</sup>	Modification of Ion Nitriding of Ti-6Al-4V for Simultaneous Improvement of Wear and Fatigue Properties	Ph.D.	2014
Y. Li <sup>‡§</sup>	Optical Characterization of Cobalt Oxides and Graphen-Enhanced Surface Plasmon Resonance	Ph.D.	2015
S. Xing <sup>§‡</sup>	Kinetic Study of Graphene Synthesis by Chemical Vapor Deposition	Ph.D.	2016
F. Qin <sup>‡§</sup>	Fabrication of CoO nanomaterials and their application in water splitting	Ph.D.	2014
H. Nguyen	Graphene and graphene oxide toxicity to the microbes in the environment	Ph.D.	2017
S.-C. Chang	Seeded growth of Transition Metal dichalcogenides Array by Chemical Vapor Deposition	Ph.D.	2017
Q. Fan	Rational Design of Trimetallic Electrocatalyst for Electrochemical Overall Water Splitting	Ph.D.	2018
<sup>‡</sup> Degree completed <sup>†</sup> Students supervised in collaboration <sup>§</sup> Committee member			

**d. Other Evidence of Teaching, Student Learning, and the Scholarship of Teaching**

Student	Background	Degree Graduation	Publications	Currently at
U. Aldea	Hispanic	BS/2011	1 Journal and 1 conference	Peru
A. Abana	African American	BS/2011	Acknowledge in 1 Journal	Halliburton, PA
D. Barber	White	MS/2012	8 conference, 2 paper (1 in progress), 2 <sup>nd</sup> place at the research day at COT.	Oil industry, TX
R. Radwan J. Bernadac, D. Kydykov, M. Diaz D. McDaniel	African American Hispanic White Hispanic White	BS/2016 BS/2016 BS/2016 BS/2016	CentraTech, Senior Design Project: Casing Centralizers	UH-Technology
C. Brysch <sup>†††</sup> A. Ulmet <sup>†††</sup> , E. Wold <sup>†††</sup>	White White White	BS/2012 BS/2014 BS/2014	1 proceeding, 1 conference, 1 paper submitted	UH-Technology
N. Chaudari	Indian	PhD/2021	1 journal submitted, 2 in progress, 1 patent in progress	SMC Ltd., MN
S. Daley <sup>1</sup>	White	BS/2011	1 journal in progress	SMC Ltd., MN
J Fletcher	Mix	BS/2011	2 papers, 1 conference	Oil industry, TX
C. Mandival	Hispanic	BS/2014	2 conferences, 2 papers <sup>3</sup>	UH
F. Perez	Hispanic	BS/2014	2 conferences, 2 papers <sup>3</sup>	UH/Oil Industry
O. Hecht	Hispanic	BS/2014	2 conferences, 2 papers <sup>3</sup>	UH/Oil Industry
A. Fals	Hispanic	MS/2012	6 conferences (2 invited), 3 papers, 2 <sup>nd</sup> place at the research day at COT.	Oil industry, TX
M. Mohamed <sup>2</sup>	Arab	BS/2012	1 poster: best paper award	PhD at UH
J. Nguyen	Asian	MS/2015	In progress	UH
T. Obiri	African American	MS/2015	In progress	UH
A. O. Okonkwo	Nigeria	MS/2014	7 conferences, 4 papers, 2 <sup>nd</sup> place at the research day at COT.	UH
E. Obiry	Nigeria	MS/2014	3 conferences <sup>3</sup> , 2 papers <sup>3</sup>	UH/Exxon
J. Nguyen <sup>4</sup>	Asian	MS/2014	2 Conferences, 2 papers <sup>3</sup>	UH
D. Pepe	White	BS/2012	1 paper	Oil industry, TX
J. Quintero	Hispanic	BS/2011	3 papers (1 invited), 4 conferences (2 invited)	General Electric

<sup>1</sup> REU exchange student from University of Wisconsin at Stout, Summer 2011,

<sup>2</sup> Students in collaborative work with Dr. J. F. Eberth, College of Technology

<sup>3</sup> Work in progress

<sup>4</sup> Students in collaborative work with Dr. R. Lee and J. Neal

A. P. D. Savio	Indian	MS/2011	3 Papers (1 submitted), 3 conferences	Oil industry, TX
M. Singh	India	MS/2017	5 conferences, 2 papers accepted, 1 submitted and 2 in progress, 1 <sup>st</sup> place at the research day at COT.	Oil industry, TX
I. D. Weerasinghe	Sri Lanka	MS/2012	1 conference, 1 paper	UH
W. Yang	China	PhD/2012	4 conferences, 4 papers accepted, 1 submitted and 2 in progress	Engineering, UH
M. Yarali	Iran	PhD/2021	1 Paper in progress	Engineering, UH
T. K. Yelamarthi	Indian	MS/2012	N/A	Engineering, UH

## Research Grants Since 2005 – Total Grant Budget 5.4+ MUSD

### ***Prior to UH***

1. **PI: Francisco C. Robles Hernandez**, Title: Rail Base Corrosion, Sponsor: National Academy of Science, Budget: \$ 75,000, Period: 2005-2006.
2. **PI: Francisco C. Robles Hernandez**, Title: Advanced Rail Steel, Sponsor: Fed. Railroad Admin., Budget: \$ 180,000, Period: 2005-2006.
3. **PI: Francisco C. Robles Hernandez**, Title: Advanced Rail Welding, Sponsor: Association of American Railroads, Budget: \$ 250,000, Period: 2005-2006
4. **PI: Francisco C. Robles Hernandez**, Title: Advanced Rail Welding, Sponsor: Assoc. of American Railroads, Budget: \$ 250,000, Period: 2006-2007.
5. **PI: Francisco C. Robles Hernandez**, Title: Advanced Rail Steels, Sponsor: Association of American Railroads, Budget: \$ 168,000, Period: 2006-2007.
6. **PI: Francisco C. Robles Hernandez**, Title: Strategies to Prevent Wheel Failure, Sponsor: Association of American Railroads, Budget: \$ 250,000, Period: 2006-2007.
7. **PI: Francisco C. Robles Hernandez**, Title: Advanced Rail Steels, Sponsor: Association of American Railroads, Budget: \$ 178,000, Period: 2007-2008.
8. **PI: Francisco C. Robles Hernandez**, Title: Strategies to Prevent Wheel Failure, Sponsor: Association of American Railroads, Budget: \$ 350,000, Period: 2007-2008.
9. **PI: Francisco C. Robles Hernandez**, Title: Advanced Rail Steels, Sponsor: Association of American Railroads, Budget: \$ 190,000, Period: 2008-2009
10. **PI: Francisco C. Robles Hernandez**, Title: Strategies to Prevent Wheel Failure, Sponsor: Association of American Railroads, Budget: \$ 350,000, Period: 2008-2009.
11. **PI: Francisco C. Robles Hernandez**, Title: Rail Base Corrosion Phase II, Sponsor: National Academy of Science, Budget: \$ 80,000, Period: 2008-2009.
12. **PI: Francisco C. Robles Hernandez**, Title: Completion of the 2008 Tasks for the Strategy Research Initiatives (SRI) 8 C and 11 A, Sponsor: Transportation Technology Center, Inc., Budget: \$ 15,000, Period: 2008-2009.

### ***While at UH***

13. **PI: Francisco C. Robles Hernandez**, Title: Start Up Budget, Sponsor: College of Technology, and the Department of Engineering Technology at the University of Houston, Budget: \$ 185,000, Period: 2008-2011.
14. **PI: Francisco C. Robles Hernandez**, Title: Completion of the 2008 Tasks for the Strategy Research Initiatives (SRI) 8 C and 11 A. Sponsor: Transportation Technology Center, Inc., Budget: \$ 15,000, Period: 2008-2009.
15. **PI: Francisco C. Robles Hernandez**, Title: Development of a Thermal Analysis Workstation for On-Line Screening for Mid and High Carbon Steels, Sponsor: University of Houston, Budget: \$ 6,000, Period: 2009-2010.

16. **PI: Francisco C. Robles Hernandez**, Title: SEM analysis of samples from railroad bearings, Sponsor: Transportation Technology Center, Inc., Budget: \$ 1,400, Period: 2009.
17. **PI: Francisco C. Robles Hernandez**, Title: SEM Analysis of the Shelling in Thermite Welds and Shelling in Rail, Sponsor: Transportation Technology Center, Inc., Budget: \$ 2,600, Period: 2009.
18. **PI: Francisco C. Robles Hernandez**, Title: SEM Analysis of the Shelling Observed on Railroad Wheel Flanges Phases I-III, Sponsor: Transportation Technology Center, Inc., Budget: \$ 7,600, Period: 2009.
19. **PI: Francisco C. Robles Hernandez**, Title: Development of TiO<sub>2</sub> Materials to Improve the Photo catalytic Efficiency of Commercial Si Solar Cells, Sponsor: University of Houston, Budget: \$ 3,000, Period: 2010-2011.
20. **PI: Francisco C. Robles Hernandez**, Title: Heat exchange improvement ideas for Water Heater Trucks, Sponsor: McAda Fluids Heating Services, Budget: \$ 68,650, Period: 2011-2012.
21. **PI: Francisco C. Robles Hernandez**, Title: Laser Cladding of Welds to Improve Railroad Track Safety, Sponsor: National Academies, Safety Transit – IDEA Program, Budget: \$ 168,171, Period: 2013-2014.
22. **PI: Francisco C. Robles Hernandez, PhD**, Co-PI: Ray Taylor, PhD, Minimization of weld failures by means of gas and shrinkage porosity reduction, National Academies/Federal Railroad Administration/TRB-IDEA, Budget: \$ 151,500 USD, **Effort: 80%**.
23. PI: J. Neal, CoPI's: **Francisco C. Robles Hernandez** and R. Lee, Title: Prevalence of Carbon Nanotubes in Irradiated Foods and the Potential Impact on Health, Sponsor: GEAR – University of Houston, Budget: \$ 29,996, Period: 2013-2014.
24. **PI: Francisco C. Robles Hernandez**, Title: Provost Faculty and UH Global Travel Funds, Sponsor: University of Houston, Budget: \$ 8,500, Period: 2014-2019.
25. **PI: Francisco C. Robles Hernandez**, Title: International Agreement between the University of Houston and CONACyT: 2016-2021.
  - a. Prepare, facilitate and implement a five year agreement among the government of Mexico (CONACyT – equivalent to NSF in the US) and the University of Houston to fund Mexican students to pursue graduate studies at the University of Houston.
  - b. This will represent for the University of Houston a multi-million dollar agreement that is usually signed only with the top 100 universities in the world.
  - c. **2019:** 5 Graduate Students, Funding: \$ 50,318.69  
**2018:** 5 Graduate Students: \$ 50,319  
**2017:** 4 Graduate Students and 1 Sabbatical: \$ 101,784  
**2016:** 5 Graduate Students: 93,414
  - d. <https://www.uh.edu/news-events/stories/2017/March/03212017CONACyT.php>

- e. <http://thedailycougar.com/2017/04/05/mexico-partnership-creates-opportunities-for-post-graduates/>
  - f. <https://www.uh.edu/provost/news/news-releases/20170206-uh-conacyt-partnership.php>
26. **PI:** Dr. Xiaojing Yuan, **Francisco C. Robles Hernandez**, Title: Succeed in Engineering Technology Scholars (SETS): Identifying and Developing Future Technology Leaders, Sponsor: National Science Foundation, Budget: \$ 767,868, Period: 2015-2020, NSF-Grant Number 1458772.
  27. A. Reyes (PI), **F. C. Robles Hernandez (Co-PI)** UH two-week College and Career Readiness Institute for Houston Independent School District (HISD) migrant, newcomer, and bilingual students, 17,000 USD, June 2016.
  28. PI: S. Zhu, et. al, Senior Personnel: **F. C. Roble Hernandez**, RET Site: High School Teacher Experience in Engineering Design and Manufacturing, NSF, \$ 579,490, period 06/01/19 - 05/31/22.
  29. PI: Stanko Brankovic, **Co-PI: F. C. Robles Hernandez**, ELECTRODEPOSITED SOFT CONIFEX MAGNETIC FILMS WITH LOW MAGNETIC LOSSES FOR POWER APPLICATIONS, Semiconductor Research Corp., 239,602 USD.
  30. **PI: F. C. Robles Hernandez**, Co-PI: Venkatesh Balan, Funds to purchase Planetary Mill to produce Bo-degradable Composite Materials, The University of Houston, 38,410 USD.
  31. **PI: F. C. Robles Hernandez**, Co-PI: Goran Majkic, Inline Scanning Raman Spectroscopy for Quality Control and Process Feedback for Reel-to-Reel Manufacturing” to the Advanced Manufacturing Institute, \$49,829.
  32. **PI: F. C. Robles Hernandez**, Residual Stress Analysis in Aluminothermic Welds by Means of Strain Gauges, Pandrol, 53,453 USD, Pending.
  33. **PI: F. C. Robles Hernandez**, Thorough characterization of thermite welds and development of a protocol for rapid characterization, Pandrol, 117,000 USD, Pending.
  - 34.

## **Reviewer**

### **Proposals**

- Civilian Research and Development Foundation for the Independent States of the Former Soviet Union (CRDF Global)
- International Science and Technology Center
- National Authority for Scientific Research – Romania
- National Science Engineering Research Council – Canada
- National Science Foundation
- Partnership STW NWO ProRail – The Netherlands
- University of Houston – GEAR

### **Books and Invited Editor**

- Springer Nature  
Book: Metallurgical Design from Prehistory to the Space Age  
By: Clyde Briant Otis E. Randall University Professor, Brown University) and Brett Kaufman (Joukowsky Institute for Archaeology and the Ancient World, Brown University)

### **Journals**

- Advanced Engineering Materials
- Carbon
- Catalysis Today
- Composites Part B: Engineering
- Current Science
- International Journal of Applied Ceramic Technology
- Journal of ASTM International
- Journal of Applied Ceramic Technology
- Journal of Materials Chemistry and Physics
- Journal of Materials Science
- Journal of Mechanical Engineering Science
- Journal Surface Coatings and Technology
- Materials Characterization
- Materials and Design
- Metallurgical and Materials Transactions
- Materials Research Bulletin
- Materials Science and Engineering
- Materials Today
- Metallurgical Transactions
- Proceedings of the Institute of Mechanical Engineers
- Science Advances
- Surface and Coatings Technology
- Thermomechanical Acta
- Wear
- 2011 ASEE GSW Annual Conference

### Awards and Distinctions

- **F. C. Robles Hernández**, The past, the Present and the Future of the Metallurgy of Railways, Conference of the South African Advanced Materials Initiative (CoSAAMI-2019), 2012, South Africa, Vaal River from the 22nd to 25th of October, 2019, *Plenary Speaker*.
- M. Singh, F. Qin, O. I. Perez Ordoñez, W. Yang, J. Bao, A. Genc, V. G. Hadjiev, **F. C. Robles Hernandez**, Unusual catalytic activity of TiO<sub>2</sub>-CoTiO<sub>3</sub> under 1064 nm pulsed laser illumination, *Catalysis Today, Invited Paper, May 2019*.
- Wenli Yang, *Best PhD Thesis Award* in Materials Science and Engineering, Low Temperature Synthesis Sapphire and Ruby and Their Optical Applications, 2019.
  - Supervisors: Drs. **F. C. Robles Hernandez** and S. Brankovich
  - <http://www.uh.edu/technology/news-events/stories/2019/may/0522-graduate.php>
  - <https://www.egr.uh.edu/news/201905/cullen-college-celebrates-excellence-outstanding-service-awards>
- Kamyar Ahmadi *First Place* in the 2019 Spring Poster Competition UH Electrochemical Society student chapter.
  - Supervisors: Drs. **F. C. Robles Hernandez** and S. Brankovich
  - <http://www.uh.edu/technology/news-events/stories/2019/may/0522-graduate.php>
  - <https://www.egr.uh.edu/news/201904/photos-ecs-spring-2019-poster-competition>
- O. Velazquez-Meraz§, J.E. Ledezma-Sillas§, **F.C. Robles-Hernandez**†, J.M. Herrera-Ramirez, Synthesis and Characterization of Chitosan Composites Reinforced with Carbon Nanostructures, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-19, 2016. *First Prize*.
- **F. C. Robles Hernández**, N. G. Demas, K. Gonzales, A. A. Polycarpou, Correlation between Ball-on-disk Test and Full-scale Rail Performance Tests, *Wear* 270 (2011) 479–491. *Feature as the 6<sup>th</sup> most downloaded paper from Jan-March 2011 and 17<sup>th</sup> place from Jan-Dec 2011*.
- Mohamed MA, Barnett B, **Robles Hernandez F.C.**, Eberth JF. “Quantifying Elastic Fiber Network Fragmentation Using Raman Spectroscopy,” MAES 37th Annual Symposium, Oakland California (2011). *Best Paper Award*
- **F. C. Robles Hernández**, S. Cummings, S. Kalay, Dan Stone, “Development and Evaluation of Advanced Wheel Steels to Prevent Wheel Failures in North American Heavy Haul Operating Environment”, International Heavy Haul conference, Shanghai, China, June, 2009. *Best Paper Award*  
<http://www.aar.com/news/pdfs/IHHA%20TTCI%20Best%20Paper%20awards%202009.pdf>
- F. C. Robles Hernandez, H. A. Calderon, COM conference held in Montreal, Canada 2002. *Second Best Poster*
- **Scholarship**: Master Degree Studies at the National Polytechnic in Mexico City by the “Consejo Nacional de Ciencia y Tecnología” (CONACYT), 1996-1998, Mexico.
- **Scholarship**: PhD Degree Studies at the University of Windsor, Ontario Canada by the “Consejo Nacional de Ciencia y Tecnología” (CONACYT), 2000-2004, Canada.
- **Visa differential scholarship**: for international students at the University of Windsor, Engineering Department, 2001-2004.
- **Five Scholarships**: American Foundry Society and Foundry Educational Foundation (USA) 2002-2004.
- **Scholarship**: North American Die Casting Association (NADCA), 2003.



### Invited Lectures

- **F. C. Robles Hernández**, The past, the Present and the Future of the Metallurgy of Railways, Conference of the South African Advanced Materials Initiative (CoSAAMI-2019), 2012, Magaliesburg, South Africa, Vaal River from the 22-25th of October, 2019, *Plenary Speaker*.
- **Francisco C. Robles Hernandez**, The Materials and the Science of Advanced Ceramics, April 19, 2017, UMSNH, Morelia, Mich., 2017. *Keynote Speaker*.
- **Francisco C. Robles Hernandez**, The Materials and the Science of the Railways, April 19, 2017, UMSNH, Morelia, Mich., 2017. *Keynote Speaker*.
- F. C. Robles Hernández, Pure Elastic Phenomena Induced by a sp<sup>2</sup> Carbon Allotrope Reinforcement for Advanced Structural Composites, Electrical Engineering Department at the University of Houston, April 2016.
- F. C. Robles Hernandez, Manufacturing of Advanced Materials for Structural and Energy Related Applications, Faculty Hiring Committee of the Mechanical Engineering Department at the University of Alberta, March 6, 2015.
- F. C. Robles Hernandez, Pure Elastic Phenomena Induced by a sp<sup>2</sup> Carbon Allotrope Reinforcement for Advanced Structural Composites, Seminar to the Engineering Department at the University of Houston, March 13, 2015.
- **F. C. Robles Hernandez**, Development of an Effective Carbon Nanostructure Reinforcement for Structural Applications, to Dr. M. Terrones Group at The Pennsylvania State University, March 2012.
- **F. C. Robles Hernández**, Metallurgy of High Carbon Steels for Railroad Applications, Ferrous and Base Metals Development Network Conference 2012, Magaliesburg, South Africa, 15–17 October 2012, *VIP-Keynote Speaker*.
- R. Ordóñez Olivares, C.I. García, A. DeArdo, S. Kalay, **F.C. Robles Hernández**, Metallurgy of High Carbon Steels for Railroad Applications, V Congreso Internacional de Metalurgia y Materiales, Physical Metallurgy: Steels, September 28-30, 2011, Monclova Coah., Mexico. *Key Note Speaker*
- **F. C. Robles Hernandez**, Solid State Synthesis of Carbon Nanostructures, to Dr. A. Alpas group: Lightweight Materials for Automotive Products and Manufacturing, University of Windsor, Windsor, Canada, October 2009.
- Induction Heating, Pressure Welding, Seminar to the College of Technology Department at the University of Houston, October 2008.

### Visiting Lecturer

- Institution: Universidad Michoacana de San Nicolás de Hidalgo

Course:	Técnicas avanzadas de Caracterización y Análisis
Audience:	Graduate program in Materials Science and Metallurgy
Dates:	December 11-11, 2015
Length:	30 h

- Institution: Univ. Autonoma de Coahuila and Altos Hornos de Mexico, S.A. de C. V.

Course:	Técnicas avanzadas de Caracterización y Análisis de Aceros Advanced Methods of Characterization and Analysis for Steels
Audience:	Graduate program in Siderurgy
Dates:	February to May, 2014
Length:	40 h

### Invited Talks

- A. Reyes, J. Ortiz, **F. C. Robles Hernandez**. Strategies to promote Materials Science and Engineering for Graduate, Undergraduate and K12 Students, Symposium Session DH: Making Out-of-School STEM Welcoming across Languages, AAPT 2019, Houston, TX January 12-15 2019. *Invited Talk*
- **F. C. Robles Hernandez**, H. A. Calderon, F. Alvarez Ramirez, R. Ordonez, V. G. Hadjiev, "Effective reinforcement of Carbon-Carbon Composites Using Morphed Graphene" Symposium D4, Probing Nanomaterials in Space or Time with High Spatial and Energy Resolution at the XXVII International Materials Research Congress, to be held in Cancun in August 19 - 24, 2018. *Invited Talk*
- A. Reyes, J. Ortiz, **F. C. Robles Hernandez**. Strategies to promote Materials Science and Engineering for Graduate, Undergraduate and K12 Students, Symposium F7, Preparing the Next Generation of Materials Scientists with New Approaches XXVII International Materials Research Congress, to be held in Cancun in August 19 - 24, 2018. *Invited Talk*
- **F.C. Robles-Hernandez**, M. Singh, O. I. Pérez Ordonez, F. Qin, J. Bao, D. Gostovic, Pulse Laser Active TiO<sub>2</sub>-CoTiO<sub>3</sub> Catalysts for Energy Applications, Symposium C3, Solar Hydrogen Production, XXVII International Materials Research Congress, to be held in Cancun in August 19 - 24, 2018. *Invited Talk*
- F. C. Robles Hernandez, H. A. Calderon, J. Bao, L. Echegoyen, Y. Yao, A. Genc Characterization of Advanced Materials by means of Aberration Corrected Transmission Electron Microscopy, PANANO 2017, Guaruja Brazil, 2017. *Invited Talk*
- **Francisco C. Robles Hernandez**, The Materials and the Science of Advanced Ceramics, April 19, 2017, UMSNH, Morelia, Mich., 2017. *Keynote Speaker*.
- **Francisco C. Robles Hernandez**, The Materials and the Science of the Railways, April 19, 2017, UMSNH, Morelia, Mich., 2017. *Keynote Speaker*.
- P. Jagadale, F. C. Robles Hernandez, D. Demarchi1, A. Tagliaferro, Improving Composite Properties and Biosensor Sensitivity Using Low Cost Nanostructured Carbons, 28th International Microprocesses and Nanotechnology Conference (MNC 2015), November 10-13, Toyama International Conference Center, Toyama, Japan. *Invited Talk*
- F. C. Robles Hernandez, Pure Elastic Phenomena Induced by a sp<sup>2</sup> Carbon Allotrope Reinforcement for Advanced Structural Composites, Engineering Department at the University of St. Thomas, March 20, 2015. *Invited Talk*
- F. C. Robles Hernandez, Pure Elastic Phenomena Induced by a sp<sup>2</sup> Carbon Allotrope Reinforcement for Advanced Structural Composites, Electrical Engineering Department at the University of Houston, March 13, 2015. *Invited Talk*
- F. C. Robles Hernandez, Manufacturing of Advanced Materials for Structural and Energy Related Applications, Mechanical Engineering Department at the University of Alberta, March 6, 2015. *Invited Talk*
- S.S. Pei, Y.T. Lin, K.P. Huang, S.C. Chang, S.R. Xing, F. Robles Hernandez, R. Beisenov, Z. Mansurov, CVD Graphene and 2D Transition Metal Dichalcogenides, Fourth International Symposium on Nanotech, Energy and Space, San Antonio May 12-14, 2015. *Invited Talk*
- J. Bao, S. Baldelli, F. C. Robles Hernandez, R. Zhifeng, Efficient solar water-splitting using a nanocrystalline CoO photocatalyst, First Conference in Artificial Photosynthesis, Cocoyoc Mexico, November 2-6, Morelos, Mexico. *Invited Talk*
- F. C. Robles Hernández, A. K. P. D. Savio, J. Fletcher, R. Iyer, J. Bao, Overview of the Synthesis and Catalytic Activity of TiO<sub>2</sub>, First Conference in Artificial Photosynthesis, Cocoyoc Mexico, November 2-6, Morelos, Mexico. *Invited Talk*
- **F. C. Robles Hernandez**, H. A. Calderon, D. Barber§, A. Okonkwo§, J. Quintero§, R. Ordoñez Olivares, V. Hadjiev, F. Alvarez, Unprecedented elastic behavior induced by in situ

reinforced all carbon composites, Monclova Coah., Mexico, “VII Congreso Internacional de Metalurgia y Materiales”, April 4, 2014. **Keynote Speaker.**

- H. A. Calderon, D. Barber, F. Alvarez Ramirez, A. Okonkwo, J. Quintero, R. Ordoñez Olivares, V. Hadjiev, **F. C. Robles Hernández** Pure elastic phenomena in all carbon composites and applications, MRS Cancun XXII International Materials Research Congress, Cancun, Qro. Mexico, August 11-15, 2013. **Invited Speaker.**
- **F. C. Robles Hernández**, D. Barber, J. Quintero, A. E. Fals, 2012 Southwest Regional ACS Meeting, Conjugated-Carbon Nanostructures: Molecular Topology, Tunable Properties and Applications, November 4-7, 2012. **Invited Speaker.**
- **F. C. Robles Hernández**, H. A. Calderon, Composites Reinforced with Carbon Nanostructures an Overview, XX International Materials Research Congress, Cancun, August 2011. **Invited Presentation**
- A. E. Fals, J. Quintero, **F. C. Robles Hernández**, Manufacturing of Hybrid Composites and Novel Methods to Synthesize Carbon Nano-particles, 1276:3 Advanced Structural Materials 2011. **Invited Paper**
- **F. C. Robles Hernández**, H. A. Calderón, “Synthesis of fullerene on Fe-C composites by Spark Plasma Sintering & thermomechanical transformation of fullerene to diamond”, XVIII International Materials Research Congress, Cancun 2009. **Invited Presentation.**
- F. C. Robles Hernández, Comparison among Chemical and Electromagnetic Stirring and Vibration Melt Treatments for Al-Si hypereutectic Alloys, the XIX International Materials Research Congress, Cancún, Mexico, August, 2010. **Invited Presentation**

### List of Publications

#### Papers in Journals, Peer-Review Proceeding, Presentations, and Reports

**Author’s Contribution:** Students are identified with an “§”, Dr. F.C. Robles Hernandez listed as group leader “‡”, and Dr. F.C. Robles Hernandez listed as main contributor “†”.

#### Patents

1. US Patent Number: US7559999, Publication Number: 20090053095 (2009), **F. C. Robles Hernández**†‡, Daniel Hunter Stone, Railroad Steel Having Improved Resistant to Rolling Contact Fatigue.
2. US Patent Number: US7591909, Publication Number: 20090051182 (2009), **F. C. Robles Hernández**†‡, Daniel Hunter Stone, Railroad Wheel Steel Having Improved Resistance to Rolling Contact Fatigue.
3. **F. C. Robles Hernández**†‡ and A. Okonkwo§, (University of Houston) and Dr. H. A. Calderon Benavides (Instituto Politécnico Nacional – ESFM, México), Synthesis of Effective Carbon Nanoreinforcements for Structural Applications, Patent 10,086,539, Date Issued: October 2, 2018.

#### Record of Invention and Provisional Patent

4. F. C. Robles Hernandez‡†, Fernando D. Cortes Vega§, Wenli Wang§, Stanko R. Brankovic, Synthesis of Crystals for Advanced Optics Applications, U.S. Patent Application No. 62/537,822 on July 27, 2017.
5. F. C. Robles Hernandez‡†, Ray S. Taylor, Miad Yarali, Thermite welding improvements by means of vibration for railway applications and elsewhere, 62/934209.

#### Submitted Patents (Disclosures)

## **Books**

1. J. López Cuevas, A. García Murillo, **F. C. Robles Hernández**, Editors of the Proceedings of the 2014 IMRC Symposium 4A: Advanced Structural Materials, Conference held in Cancun, Quintana Roo, August 17-21, 2014, MRS, 1765, 2015.
2. J. López Cuevas, M. Herrera Ramírez, **F. C. Robles Hernández**, Editors of the Proceedings of the 2015 IMRC Symposium 6B: Advanced Structural Materials, Conference held in Cancun, Quintana Roo, August 16-20, 2015, MRS, 1812.
3. **F.C. Robles Hernandez**<sup>‡†</sup>, J.M.H. Ramírez, R. Mackay, Al-Si Alloys: Automotive, Aeronautical, and Aerospace Applications, ISBN 3319583808, 9783319583808, Springer, August 2017, pp 237.

## **Book Chapters**

4. A. K. P. D. Savio§, J. Fletcher§, K. Smith, R. Iyer, J. Bao, **F. C. Robles Hernández**, Effective visible light photodegradation of paraoxon with pure and doped TiO<sub>2</sub>, Advanced Catalytic Materials: Current status and future progress, Editor: Manuel Ramos Murillo, Springer Nature, In Press 2019.
5. I. Estrada-Guel, **F.C. Robles-Hernandez**, R. Martínez-Sánchez, A Green Method for Graphite Exfoliation Using a Mechanochemical Route, Materials Characterization, R. Pérez Campos, A. Contreras Cuevas, and R. Esparza Muñoz, Editors. 2015, Springer International Publishing. p. 179-188.
6. J. M. Mendoza Duarte§, I. Estrada-Guel, **F.C. Robles-Hernandez**, C. Carreño-Gallardo§, C. López-Meléndez§, R. Martínez-Sánchez, Mechanical and microstructural response of an aluminum nanocomposite reinforced with carbon-based particles, Materials Research, 0, 0, 2016.

## **Invited editor (2019: 2 in process, non-listed)**

1. J. López Cuevas, **F. C. Robles Hernández**, J. M Herrera Ramirez, J. M. Cabrera Marero, 2015 IMRC Symposium: Advanced Structural Materials, IMRS Conference held in Cancun, Quintana Roo, MRS Advances, 2, 61, 2017.
2. **F. C. Robles Hernández**<sup>‡†</sup>, J. López Cuevas, J. M Herrera Ramirez, J. M. Cabrera Marero, 2016 IMRC Symposium: Advanced Structural Materials, IMRS Conference held in Cancun, Quintana Roo, MRS Advances, 2, 62, 2017.
3. J. M Herrera Ramirez, **F. C. Robles Hernández**, J. López Cuevas, J. M. Cabrera Marero, Y. Martinez Rubi, Invited Editors MRS Advances 2017 IMRC Symposium 4A: Advanced Structural Materials, IMRS Conference held in Cancun, Quintana Roo, MRS Advances, 3, 62, 2018.

## **Peer-Review, Proceedings, Journals, and Conferences by Year**

### **Submitted Peer Review Papers**

- \* S Alancherry§, K. Bazaka§, I. Levchenko§, A. Al-jumaili§, B. Kandel, A. Alex, **F. C. Robles Hernández**, Oomman K. Varghese, M. V. Jacob, Nano-onion like graphene nanostructures fabricated from natural products and their applications, Advanced Functional Materials, *April 2019*.
- \* T. Liu§, Y. Zhang§, C.-H. Li§, M. D. Marquez§, **F. C. Robles Hernández**, Y. Yao, T. R. Lee, SiO<sub>2</sub>-Coated Sulfur Nanoparticles Loaded with Au Nanoparticles for High Performance Lithium–Sulfur Batteries, *Submitted 2019*.
- \* **Francisco C. Robles Hernandez**<sup>‡†</sup>, J. A. Neal, C. Mirabal§, D. A. Pepe§, S. A. Sirsat, Bacteriostatic Effect of CoO-TiO<sub>2</sub> on *Listeria Monocytogenes* by the presence of the Co-Catalytic CoO Nanoparticles, *July 2019*.

- \* Zixing Wang, Harikishan Kannan, Tonghui Su, Sharmila N. Shirodkar, Francisco C Robles Hernandez, Hector A. Calderon, Robert Vajtai, Boris I. Yakobson, Ashokkumar Meiyazhagan,\* Pulickel M. Ajayan, Synthesis of Cu Atom Embedded MoS<sub>2</sub> Nanosheets as CO<sub>2</sub> Reduction Catalyst, *submitted in October 2019*.

Peer Review Papers

1. J. Xua, G. Babua, K. Kato, **F. C. Robles Hernández**, A. Puthiratha, A. Britz, D. Nordlunde, S. Sainio, U. Bergmann, P. M. Ajayana, High capacity Li/Ni rich Ni-Ti-Mo oxide cathode for Li-ion batteries, *Solid State Ionics*, 345, 2020, 115172.
2. O. Velazquez-Meraz§, J. E. Ledezma-Sillas§, C. Carreño-Gallardo, W. Yang§, N. M. Chaudhari§, H. A. Calderon, I. Rusakova, **F. C. Robles Hernandez**†‡, J. M. Herrera-Ramirez, Mechanical improvements on bio-polymer matrix composites by addition of morphed graphene, *Composite Science and Engineering*, 184, 10, 2019 . **IF: 6.63**.
3. J. Swaminathan§, S. Enayat§, A. Meiyazhagan, **F. C. Robles Hernandez**, X. Zhang, R. Vajtai , F. M. Vargas, P. Ajayan, Asphaltene Derived Metal Free Carbons for Electrocatalytic Hydrogen Evolution, *ACS Applied Materials & Interfaces*, 11, 31, 2019. **IF. 8.5**
4. Y. Wang§, C. Wang§, X. Su§, V. G. Hadjiev, H. A Calderon Benavides, Y. Ni, Md K. Alam§, **F. C. Robles-Hernandez**, Y. Yao, S. Chen, Z. Wang, J. Bao, Extrinsic Green Photoluminescence from the Edges of Two-dimensional Cesium Lead Halides", *Advanced Materials*, 31, 33, 1902492, 2019. **IF: 21.95**
5. H. A. Calderon, D. Barber§, A. Okonkwo§, J. Quintero§, F. Alvarez Ramirez, R. Ordoñez Olivares, V. G. Hadjiev, I. Estrada Guel **F. C. Robles Hernandez**†‡, Enhanced Elastic Behavior of All-Carbon Composites Reinforced by In Situ Synthesized Morphed Graphenes, *Carbon*, 153, 2019, 657-662. **IF: 7.1**
6. M. Singh§, F. Qin§, O. I. Perez Ordoñez§, W. Yang§, J. Bao, A. Genc, V. G. Hadjiev, **F. C. Robles Hernandez**†‡, Unusual catalytic activity of TiO<sub>2</sub>-CoTiO<sub>3</sub> under 1064 nm pulsed laser illumination, *Catalysis Today, Invited Paper*, *In press June 2019*. **IF: 4.7**
7. A. Tejada-Ochoa§, C. Carreño-Gallardo, J.E. Ledezma-Sillas§, C. Prieto-Gomez§, N.R. Flores-Holguin§, **F.C. Robles-Hernandez**, J.M. Herrera-Ramirez, Theoretical and experimental study of the different chemical routes to synthesize crystalline sodium silicate from silica-rich sand, *Revista Mexicana de Química*, 18, 2, 2019, 581-588. **IF: 1.5**.
8. Fernando D. Cortes-Vega§, Wenli Yang§, H. A. Calderon, J. Zarate-Medina, S. R. Brankovic, **Francisco C. Robles Hernandez**†‡, Mechanochemical synthesis of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>-Cr<sup>3+</sup> (Ruby) and  $\chi$ -Al<sub>2</sub>O<sub>3</sub>, *J. of the American Ceramic Society*, 102, 3, 2018, 976-980. **IF: 2.84**.
9. S. Susarla§, T. Tsafack§, P. Samora Owuor§, A. B. Puthirath§, J. A. Hachtel§, G. Babu, A. Apte, B. I. Jawdat, M. S. Hilario, A. Lerma, H. A Calderon, **F. C. Robles Hernandez**, D. W. Tam, T. Li, A. R. Lupini, J. C. Idrobo, J. Lou, B. Wei, P. Dai, C. Sekhar Tiwary, P. M. Ajayan Viscoelastic high-K dielectric S-Se chalcogenide Alloy, *Science Advances*, 5, 5, eaau9785, 2019. **IF: 11.51**
10. W. Qin§, R. Jain§, **F. C. Robles Hernández**, J. D. Rimer, Organic-Free Interzeolite Transformation in the Absence of Common Building Units, *Chemistry a European Journal*, 25, 2019, 1-7. **IF: 5.16**.
11. H. A. Calderon, O. V. Meraz§, L. Echegoyen, **Francisco C. Robles Hernandez**†‡, Mechanical Synthesis of Fullerene-Graphene/Morphed Graphene Architectures, *Microscopy and Microanalysis*, 25, 2, 2019, 844-845. **IF: 2.5**
12. **Francisco C. Robles Hernandez**†‡, K. Ahmadi§, A. Stokes§, J. McNeil, S. R. Brankovic, Atomic Resolution Characterization of Cr thin films produced from Cr<sup>3+</sup> electrolytes, *Microscopy and Microanalysis*, 25, 2, 2019, 2196-2197. **IF: 2.5**

13. H. A. Calderon, J. Bao, Y. Wang§, Viktor Hadjiev, **F. C. Robles Hernandez**<sup>‡†</sup>, Low Dose TEM on the Degradation of the MAPbI<sub>3</sub> Perovskite, *Microscopy and Microanalysis*, 25, 2, 2019, 1716-1717. **IF: 2.5**
14. V. G. Hadjiev, C. Wang§, Y. Wang§, X. Suv, H. A. Calderon, **F. C. Robles Hernandez**, Z. M. Wang§, J. M. Bao, Phonon fingerprints of CsPb<sub>2</sub>Br<sub>5</sub> single crystals, *Physical Review B: Condens. Matter*, 30, 405703. 2019. **IF: 3.7**
15. J. Ledezma-Sillas§, O. Perez-Ordóñez§, J. Valenzuela-Grado§, A. Tejeda-Ochoa§, C. Carreno, **F. C. Robles-Hernandez**<sup>‡</sup>, D. Iardizabal, C. Prieto-Gomez, In the CO<sub>2</sub> Emission Remediation by Means of Alternative Geopolymers as Substitutes for Cements, *Journal of Environmental Chemical Engineering*, 6, 4, 2018, 4878-4884. **IF: 4.1**
16. F. Qin§, Z. Zhao§, Md K. Alam§, Y. Ni§, **F. C. Robles Hernandez**, L. Yu, S. Chen, Z. Ren, Z. Wang, J. Bao, Trimetallic NiFeMo for Overall Electrochemical Water Splitting with a Low Cell Voltage, *ACS Energy Lett.*, 2018, 3, 546–554. **IF: 12.3.**
17. P Jagdale, S Salimpour, MH Islam§, F Cuttica, **F.C. Robles Hernandez**, A. Tagliaferro, A. Frache, Flame Retardant Effect of Nano Fillers on Polydimethylsiloxane Composites, *Journal of Nanoscience and Nanotechnology*, 18 (2), 1468-1473, 2018. **IF: 1.4.**
18. F. D. Cortes-Vega§, W. Yang§, J. Zarate-Medina, S. R. Brankovic, J. M. Herrera Ramírez, **F. C. Robles-Hernandez**<sup>‡†</sup>, Room Temperature Synthesis of  $\chi$ -Al<sub>2</sub>O<sub>3</sub> and  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, *CrysEngComm*, 25, 2019. **IF: 3.47.**
19. J. C. Wu, C. H. Xu, B. X. Qi, **F. C. Robles Hernandez**, Detection of Impact Damage on PVA-ECC Beam Using Infrared Thermography, *Applied Sciences*, special issues on: Structural Damage Detection and Health Monitoring, 8, 5, 839, 2018. **IF: 1.68.**
20. A. V. Agrawal§, N. Kumar§, S. Venkatesa, A. Zakhidov, C. Manspecker, Z. Zhu, **F.C. Robles Hernandez**, J. M. Bao, M. Kumar, Controlled growth of MoS<sub>2</sub> flakes from in-plane to edgengeriched 3-D network and their surface energy studies, *ACS Applied Nano Materials*, 1, 5, 2018, 2356–2367. **IF: N/A.**
21. J.M. Mendoza-Duarte§, **F.C. Robles-Hernandez**, C.G. Garay-Reyes§, I. Estrada-Guel, R. Martínez-Sánchez, An Al-Li powder alloy prepared by mechanical milling and sintered using high frequency induction, *Microscopy and Microanalysis*, 24, S1, 2018. **IF: 2.495.**
22. J.M. Mendoza-Duarte§, **F.C. Robles-Hernandez**, C.G. Garay-Reyes§, I. Estrada-Guel, R. Martínez-Sánchez, An Eco Friendly Mechanochemical Alternative Route for Exfoliated Graphite preparation, *Microscopy and Microanalysis*, 24, S1, 2018, 1634-1635. **IF: 2.495.**
23. H. A. Calderon, D. A. Barber§, F. Alvarez Ramirez, R. Ordoñez Olivares, V. Hadjiev, **F. C. Robles Hernandez**<sup>‡†</sup>, Effective Reinforcement of carbon-carbon composites using Morphed Graphene, *Microscopy and Microanalysis*, 24, S1, 2018, 138-139. **IF: 2.495.**
24. M. Singh§, F. Qin§, W. Yang§, J. Bao, A. Genc, **F. C. Robles Hernandez**<sup>‡†</sup>, Sunlight active perovskites (TiO<sub>2</sub>-CoTiO<sub>3</sub>) with Effective Dye Degradation and Water Splitting, *Microscopy and Microanalysis*, 24, S1, 2018, 154-155. **IF: 2.495.**
25. J.M. Mendoza-Duarte§, **F.C. Robles-Hernandez**, C. Carreño-Gallardo, I. Estrada-Guel, R. Martínez-Sánchez, Al-Graphite composites prepared by pulvimetalurgy applying an innovative sintering route, which avoids carbides formation, *Microscopy and Microanalysis*, 24, S1, 2018. **IF: 2.495.**
26. H. A. Calderon, **F. Robles Hernandez**, Y. Wang§, C. Wang§, X. Su§, V. G. Hadjiev, Z. M. Wang, Y. Ni, M. K. Alam§, Y Yao, Y. Yang, S. Chen, Z. Ren, Z. Wang, J. M. Bao, TEM Characterization of the Edges of CsPb<sub>2</sub>Br<sub>5</sub> Perovskite Crystals, *Microscopy and Microanalysis*, 24, S1, 2018, 1984-1985. **IF: 2.495.**
27. F. D. Cortes Vega§, P. G. Martinez Torres, J. Pichardo Molina, N. M. Gomez Ortiz, V. G. Hadjiev, J. Zarate Medina, **F. C. Robles Hernandez**<sup>‡†</sup>, SERS active gold nanoparticles resistant to atmospheric and extreme temperatures, *J. Materials Chemistry C*, 20, 2017. **IF 6.6.**

28. J.M. Mendoza-Duarte, **F.C. Robles Hernandez**, I. Estrada-Guel, R. Martínez-Sánchez, Aluminum sintering in air atmosphere using high frequency induction heating, *Microsc. Microanal.* 23, 1, 2017. **IF: 2.5**
29. O. Velazquez-Meraz, A. Tejeda-Ochoa, J. E. Ledezma-Sillas, C. Carreño-Gallardo, **F. C. Robles-Hernandez**†, J. M. Herrera-Ramirez, Effect of fullerene soot on the mechanical properties of chitosan, *Microsc. Microanal.* 23, 1, 2017. **IF: 2.5**.
30. J.M. Mendoza-Duarte, **F.C. Robles-Hernandez**, C. Carreño-Gallardo, I. Estrada-Guel, R. Martínez-Sánchez, Microstructural changes in aluminum mechanically milled sintered by conventional method and induction, *Microsc. Microanal.* 23, 1, 2017. **IF: 2.5**.
31. H. A. Calderon, A. Okonkwo§, I. Estrada-Guel, V. G. Hadjiev, F. Alvarez- Ramírez, **F. C. Robles Hernández**†, HRTEM Low Dose: The Unfold of the Morphed Graphene, from Amorphous Carbon to Morphed Graphenes, *Advanced Structural and Chemical Imaging*, 2, 1, 10, 2017.
32. F. R Sultanov, Z. A. Mansurov, S.S. Pei, S.C. Chang§, S. Xing§, **F. Robles Hernandez**, Y.W. Chi, K.P. Huang, Aerogels Based on Microwave Plasma Torch Synthesized Graphene, *Advances in Science and Technology*, 98, 2017, 131-135.
33. J.M. Mendoza-Duarte, **F.C. Robles Hernandez**, I. Estrada-Guel, C. Carreño-Gallardo. R. Martínez-Sánchez, Aluminum Nanocomposites Reinforced with Graphite; a Densification and Mechanical, Response Study, *MRS Advances*, 2, 50, 2017, 2847-2855.
34. H.A. Calderon, F.A. Ramírez, I. Estrada Guel, V. Hadjiev, **F.C. Robles Hernandez**†, Electron Microscopy of Morphed Graphene Nanostructures Synthesized by Mechanical Milling, *Microscopy and Microanalysis*, 22, S3, 1250-1251, 2016.
35. I. Estrada-Guel, A. O. Okonkwo§, **F.C. Robles Hernandez**†, In-Situ Transformation of Amorphous Soot into Carbon-Nanostructures by High-Energy Ball Milling, *Microscopy and Microanalysis*, 22, S3, 1902-1903, 2016.
36. H. A. Calderon, I. Estrada-Guel, F. Alvarez- Ramírez, V. G. Hadjiev, **F.C. Robles Hernandez**†, Morphed graphene nanostructures: Experimental evidence for existence, *Carbon*, 102, 288-296, 2016.
37. A. K. P. D. Savio§, J. Fletcher§, R. Iyer, J. Bao, **F. C. Robles Hernández**†, Environmentally effective photocatalyst CoO–TiO<sub>2</sub> synthesized by thermal precipitation of Co in amorphous TiO<sub>2</sub>, *Applied Catalysis B: Environmental*, 182, 2016, 449-455.
38. A. J. Corsi§, **F. C. Hernandez Robles**†, Jack A. Neal, The effectiveness of electron beam irradiation to reduce or eliminate mould in cork stoppers, *International Journal of Food Science and Technology*, 51, 2, 2016, 389-395.
39. **F. C. Robles Hernández**†, A. O Okonkwo§, V. Kadekar, T. Metz, N. Badi, Laser Cladding: the Alternative for Field Thermite Welds Life Extension, *Journal of Materials and Design*, 111, 165-176, 2016.
40. I. Estrada-Guel, A. O. Okonkwo§, **F.C. Robles Hernandez**, A Green Method for Graphite Exfoliation Using High-Energy Ball Milling, *Microscopy and Microanalysis*, 21, 3, 2015, 615-616.
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9. M. Singh§, F. Qin§, O. I. Perez Ordoñez§, W. Yang§, J. Bao, V. G. Hadjiev, **Francisco C. Robles Hernandez**<sup>†‡</sup>, Second Harmonic Generation as the Potential Source to Trigger the Photocatalytic Activity of TiO<sub>2</sub>-CoTiO<sub>3</sub>, XXVIII IMRS, Cancun, Mexico, August 18-23, 2019.
10. H. A. Calderon, X. Geng§, J. Rimer, H. Hashiguchi, K. Sakhaee§, V. Garibay Febles, **F. C. Robles Hernandez**, Low Dose Analysis of Ammonium Urates, XXVIII IMRS, Cancun, Mexico, August 18-23, 2019.
11. H. A. Calderon, O. Velazques Meraz§, L. Echegoyen, **F. C. Robles Hernandez**<sup>†‡</sup>, Mechanical Synthesis of Fullerene-Graphene/Morphed Graphene Architectures, August 4-8, 2019 Portland, OR, M&M 2019 Meeting.

12. **F. C. Robles Hernandez**<sup>‡†</sup>, K. Ahmadi§, A. Stokes§, J. McNeil, S. R. Brankovic, Atomic Resolution Characterization of Cr thin films produced from Cr<sup>3+</sup> electrolytes, August 4-8, 2019 Portland, OR, M&M 2019 Meeting.
13. H. A. Calderon, J. Bao, Y. Wang§, V. Hadjiev, **F. C. Robles Hernandez**<sup>‡†</sup>, Low Dose TEM on the Degradation of the MAPbI<sub>3</sub> Perovskite, August 4-8, 2019 Portland, OR, M&M 2019 Meeting.
14. W. Yang§, F. D. Cortes Vega, S. R. Brankovic, G. Majkic, S. Selvamanickam, **F. C. Robles Hernandez**<sup>‡†</sup>, Ruby Thin Films for Residual Stress Sensing on Tapes and other Electronic Substrates, Stockholm, Sweden, Euromat September 1-5, 2019.
15. N. M. Chaudari§, S. R. Brankovic, **F. C. Robles Hernandez**<sup>‡†</sup>, Solid State Synthesis of Highly Crystalline Graphene from Single to Multi-Layer Graphene and their Composites, Stockholm, Sweden, Euromat September 1-5, 2019.
16. *George Zouridakis*, **Francisco C. Robles Hernandez**<sup>‡</sup>, Anthony Ambler, Ongoing Transformation in Technology Education: Attracting the Next Generation of Graduate Students, XXVII Int. Materials Research Congress, Cancun, Mexico, August 19-24, 2018.
17. **F. C. Robles Hernandez**<sup>‡†</sup>, H. A. Calderon, F. Alvarez Ramirez, R. Ordonez, V. G. Hadjiev, EFFECTIVE REINFORCEMENT OF CARBON-CARBON COMPOSITES USING MORPED GRAPHENE" Symposium D4, Probing Nanomaterials in Space or Time with High Spatial and Energy Resolution at the XXVII International Materials Research Congress, to be held in Cancun in August 19 - 24, 2018. *Invited Talk*
18. A. Reyes, J. Ortiz, **F. C. Robles Hernandez**<sup>‡†</sup>, Strategies to promote Materials Science and Engineering for Graduate, Undergraduate and K12 Students, Symposium F7, Preparing the Next Generation of Materials Scientists with New Approaches XXVII International Materials Research Congress, to be held in Cancun in August 19 - 24, 2018. *Invited Talk*
19. **F.C. Robles-Hernandez**<sup>‡†</sup>, M. Singh, O. I. Pérez Ordonez, F. Qin, J. Bao, D. Gostovic, Pulse Laser Active TiO<sub>2</sub>-CoTiO<sub>3</sub> Catalysts for Energy Applications, Symposium C3, Solar Hydrogen Production, XXVII International Materials Research Congress, to be held in Cancun in August 19 - 24, 2018. *Invited Talk*
20. H. A. Calderon, D. A. Barber§, F. Alvarez Ramirez, R. Ordoñez Olivares, V. Hadjiev, **F. C. Robles Hernandez**<sup>‡†</sup>, Effective Reinforcement of carbon-carbon composites using Morphed Graphene, Microscopy and Microanalysis Conference, Baltimore, MD, August 5-9, 2018.
21. M. Singh§, F. Qin§, W. Yang§, J. Bao, A. Genc, **F. C. Robles Hernandez**<sup>‡†</sup>, Sunlight active perovskites (TiO<sub>2</sub>-CoTiO<sub>3</sub>) with Effective Dye Degradation and Water Splitting, Microscopy and Microanalysis Conference, Baltimore, MD, August 5-9, 2018.
22. J.M. Mendoza-Duarte§, **F.C. Robles-Hernandez**, C. Carreño-Gallardo, I. Estrada-Guel, R. Martínez-Sánchez, Al-Graphite composites prepared by pulvimetalurgy applying an innovative sintering route, which avoids carbides formation, Microscopy and Microanalysis Conference, Baltimore, MD, August 5-9, 2018.
23. J.M. Mendoza-Duarte§, **F.C. Robles-Hernandez**, C.G. Garay-Reyes§, I. Estrada-Guel, R. Martínez-Sánchez, An Al-Li powder alloy prepared by mechanical milling and sintered using high frequency induction, Microscopy and Microanalysis Conference, Baltimore, MD, August 5-9, 2018.
24. J.M. Mendoza-Duarte§, **F.C. Robles-Hernandez**, C.G. Garay-Reyes§, I. Estrada-Guel, R. Martínez-Sánchez, An Eco Friendly Mechanochemical Alternative Route for Exfoliated Graphite preparation, Microscopy and Microanalysis Conference, Baltimore, MD, August 5-9, 2018.

25. H. A. Calderon, F. Alvarez Ramirez, R. Ordoñez Olivares, V. Hadjiev, **F. C. Robles Hernandez**<sup>††</sup>, Effective Reinforcement of carbon-carbon composites using Morphed Graphene, XXVII Int. Materials Research Congress, Cancun, Mexico, August 19-24, 2018.
26. A. Reyes, J. Ortiz, **F. C. Robles Hernandez**<sup>††</sup>, Strategies to promote Materials Science and Engineering for Graduate, Undergraduate and K12 Students, XXVII International Materials Research Congress, Cancun, Mexico, August 19-24, 2018.
27. **F.C. Robles-Hernandez**<sup>††</sup>, M. Singh§, O. I. Pérez Ordonez§, F. Qin§, J. Bao, D. Gostovic, Pulse Laser Active TiO<sub>2</sub>-CoTiO<sub>3</sub> Catalysts for Energy Applications, XXVII International Materials Research Congress, Cancun, Mexico, August 19-24, 2018.
28. **F.C. Robles-Hernandez**<sup>††</sup>, M. Singh, O. I. Perez Ordoñez, J. A. Bao, F. Qin, Sunlight active perovskite (Co-Ti-O) with effective degradation activity for organic dyes, XXVI International Materials Research Congress, Cancun Q. Roo, Mexico, August 20-25, 2017.
29. **F.C. Robles-Hernandez**<sup>††</sup>, O. Velazques Meraz, L. A. Echeгойen, HRTEM characterization of Graphene – Fullerene Composites, XXVI International Materials Research Congress, Cancun Q. Roo, Mexico, August 20-25, 2017.
30. **F.C. Robles-Hernandez**<sup>††</sup>, M. Singh, O. I. Perez Ordoñez, J. A. Bao, F. Qin, N. N. Eldin, HRTEM characterization of water splitting catalysts, XXVI International Materials Research Congress, Cancun Q. Roo, Mexico, August 20-25, 2017.
31. **F.C. Robles Hernandez**<sup>††</sup>, I. Estrada-Guel, H. A. Calderon, F. Alvarez- Ramirez, V. G. Hadjiev, Morphed graphene nanostructures: synthesis and applications, XXVI International Materials Research Congress, Cancun Q. Roo, Mexico, August 20-25, 2017.
32. *J.M. Mendoza-Duarte*, **F.C. Robles Hernandez**, I. Estrada-Guel, R. Martínez-Sánchez, Aluminum sintering in air atmosphere using high frequency induction heating, Microscopy and Microanalysis, St. Louis, MO, August 6-10, 2017..
33. *O. Velazquez-Meraz*, A. Tejeda-Ochoa, J. E. Ledezma-Sillas, C. Carreño-Gallardo, **F. C. Robles-Hernandez**<sup>†</sup>, J. M. Herrera-Ramirez, Effect of fullerene soot on the mechanical properties of chitosan, Microscopy and Microanalysis, St. Louis, MO, Aug. 6-10, 2017.
34. *J.M. Mendoza-Duarte*, **F.C. Robles-Hernandez**<sup>††</sup>, C. Carreño-Gallardo, I. Estrada-Guel, R. Martínez-Sánchez, Microstructural changes in aluminum mechanically milled sintered by conventional method and induction, Microscopy and Microanalysis, St. Louis, MO, August 6-10, 2017.
35. **Francisco C. Robles Hernandez**<sup>††</sup>, Jaime Ortiz, The University of Houston – Mexico Partnership, April 19, 2017, UMSNH, Morelia, Mich., 2017.
36. **Francisco C. Robles Hernandez**<sup>††</sup>, The Materials and the Science of Advanced Ceramics, April 19, 2017, UMSNH, Morelia, Mich., 2017. **Keynote Speaker**.
37. **Francisco C. Robles Hernandez**<sup>††</sup>, The Materials and the Science of the Railways, April 19, 2017, UMSNH, Morelia, Mich., 2017. **Keynote Speaker**.
38. *J.M. Mendoza-Duarte*, **F.C. Robles-Hernandez**, I. Estrada-Guel, C. Carreño-Gallardo. R. Martínez-Sánchez, ALUMINUM NANOCOMPOSITES REINFORCED WITH GRAPHITE; A DENSIFICATION AND MECHANICAL, RESPONSE STUDY, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-19, 2016.
39. In Situ Transformation of Amorphous Soot into Carbon-Nanostructures by High-Energy Ball Milling; I Estrada-Guel , A. O. Okonkwo, **F.C. Robles-Hernandez**, M&M 2016, Columbus, OH, July 26-28, 2016.
40. Electron Microscopy of Morphed Graphene, Nanostructures Synthesized by Mechanical Milling; HA, Calderon, F Alvarez Ramirez, I Estrada Guel; VG Handjiev, **F.C. Robles-Hernandez**, M&M 2016, Columbus, OH, July 26-28, 2016.

41. **F. C. Robles Hernández**<sup>†‡</sup>, H. A. Calderon, I. Estrada-Guel, A. A. Okonkwo§, A. F. Alvarez- Ramírez, V. G. Hadjiev, The unfold of the morphed graphene, from amorphous carbon to morphen graphenes, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016.
42. **F. C. Robles Hernández**<sup>†‡</sup>, I. Estrada-Guel, H. A. Calderon, F. Alvarez- Ramírez, V. G. Hadjiev, Morphed graphene nanostructures: experimental evidence for existence, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016.
43. **F. C. Robles Hernández**<sup>†‡</sup>, C. Mirabal§, D. A. Pepe§, S. A. Sirsat, R. Iyer, J. A. Neal, Photo-Enhancement of TiO<sub>2</sub> by the co-Catalytic influence of CoO, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016.
44. F. Daniel Cortes Vega§, J. Zarate Medina, **F. C. Robles Hernandez**, P. Martinez Torres, Stabilization of gold nanoparticles on pseudoboehmite for its possible surface enhanced Raman Scattering, (SERS), International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016.
45. F. D. Cortés-Vega§, J. Zarate-Medina, **F. C. Robles Hernandez**<sup>†‡</sup>, Mechanical Milling on the formation of a solid solution in the system pseudoboehmite- Cr<sub>2</sub>O<sub>3</sub>, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016.
46. O. Velazquez-Meraz§, J.E. Ledezma-Sillas§, **F.C. Robles-Hernandez**<sup>†‡</sup>, J.M. Herrera-Ramirez, Synthesis and Characterization of Chitosan Composites Reinforced with Carbon Nanostructures, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016. **First Price.**
47. O.I. Pérez-Ordóñez§, A. Tejada-Ochoa§, J.E. Ledezma-Sillas§, L.E. Fuentes-Cobas§, F.C. Robles-Hernández, J.M. Herrera-Ramírez, Synthesis and Mechanical Properties of a Geopolymeric Paste, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016.
48. A. Tejada-Ochoa§, O.I. Perez Ordoñez§, F.C. Robles-Hernandez, J.M. Herrera-Ramirez, Thermal Analysis of Sodium Silicate Synthesis and its Microstructural Characterization, International Materials Research Congress, Cancun Q. Roo, Mexico, August 14-190, 2016.
49. *P. Jagadale*, F. C. Robles Hernandez, D. Demarchi1§, A. Tagliaferro, Improving Composite Properties and Biosensor Sensitivity Using Low Cost Nanostructured Carbons, 28th International Microprocesses and Nanotechnology Conference (MNC 2015), November 10-13, Toyama International Conference Center, Toyama, Japan. **Invited Talk**
50. **F.C. Robles Hernandez**<sup>†‡</sup>, A. O. Okonkwo§, I. Estrada-Guel, S. Brankovic, H. A. Calderon, F. Alvarez- Ramírez, Room temperature synthesis of graphene/graphitic carbon nanostructures with a unique Sp<sup>2</sup> “cross-linked” bonding, Euromat 2014, symposium: A2.1: Carbon nanotubes; graphene and general nanocomposites, Warsaw Poland, Sept. 20-24 2015.
51. **F. C. Robles Hernandez**<sup>†‡</sup>, H. A. Calderon, D. Barber§, A. Okonkwo§, J. Quintero§, R. Ordoñez Olivares, V. Hadjiev, F. Alvarez- Ramírez, Unprecedented elastic behavior induced by in situ reinforced all carbon composites, Euromat 2014, symposium: A2.1: Carbon nanotubes; graphene and general nanocomposites, Warsaw Poland, September 20-24 2015
52. *Jennifer Nguyen*§, Jack Neal, T. Randall Lee, **Francisco C. Robles Hernández**<sup>†‡</sup> Unprecedented Growth of Rod-Like Nanostructures in Irradiated Wine Corks, International Materials Research Congress, Cancun, Symposium 1A: Nanoscience and Nanotechnology - Clusters and Cluster Assembled Materials, August 16-20, 2015.
53. *A. O. Okonkwo*§, I. Estrada-Guel, V. G. Hadjiev, H. A. Calderon, F. Alvarez- Ramírez, **F.C. Robles-Hernandez**<sup>†‡</sup>, Synthesis of graphene/graphitic carbon nanostructures with a



- unique Sp<sup>2</sup> “cross-linked” bonding, International Materials Research Congress, Cancun, Materials Characterization, 5C. Electron Microscopy of Materials and Nanomaterials, Aug 16-20, 2015.
54. A. K. P. D. Savio§, J. Fletcher§, K. Smith, R. Iyer, J. Bao, **F. C. Robles Hernández**<sup>††</sup>, Enhanced Photo-Degradation of Paraoxon, by the Co-Catalytic Effect of Co and Rh TiO<sub>2</sub>, International Materials Research Congress, Cancun, Symposium 6A: Materials For Specific Applications - Advanced Catalytic Materials, August 16-20, 2015.
  55. *O. A. Herrera-Sanchez*§, **F.C. Robles-Hernandez**, J. E. Ledezma-Sillas§, A. Tejada-Ochoa§, J. M. Herrera-Ramirez, Aluminum-Fullerene Soot Composite Produced by Mechanical Milling, International Materials Research Congress, Symposium 6A: Materials For Specific Applications - Advanced Structural Materials, August 16-20, 2015.
  56. *I. Estrada-Guel*, A. Okonkwo§, E. Obiri§, A. Guloy, **F.C. Robles-Hernandez**<sup>††</sup>, Rapid Induction Pressure-Less Sintering of Graphitic Nanostructures with Cross-Link SP<sup>2</sup> Bonding, International Materials Research Congress, Symposium 6A: Materials For Specific Applications - Advanced Structural Materials, August 16-20, 2015.
  57. *A. Tejada-Ochoa*§, F.J. Baldenebro-Lopez§, **F.C. Robles-Hernandez**, J.M. Herrera-Ramirez, Influence of Sodium Silicate Synthesis by Silica Sand in the Mechanical Properties of Geopolymer, International Materials Research Congress, Symposium 6A: Materials For Specific Applications - Advanced Structural Materials, August 16-20, 2015.
  58. *J. Nguyen*§, Jack Neal, T. R. Lee, **F. C. Robles Hernández**<sup>††</sup> Unprecedented Growth of Rod-Like Nanostructures in Irradiated Wine Corks, International Materials Research Congress, Cancun, Symposium 6A: Materials For Specific Applications - Advanced Structural Materials, August 16-20, 2015. *Poster*
  59. *S.S. Pei*, Y.T. Lin§, K.P. Huang§, S.C. Chang§, S.R. Xing§, **F. Robles Hernandez**, R. Beisenov, Z. Mansurov, CVD Graphene and 2D Transition Metal Dichalcogenides, Fourth International Symposium on Nanotech, Energy and Space, San Antonio May 12-14, 2015. *Invited Talk*
  60. *Su-Chi Chang*§, Sirui Xing§, **F. C. Robles Hernandez**, *Shin-Shem Pei* Microwave Plasma Enhanced CVD graphene-based aerogels: synthesis and study, Carbon 2015, Dresden, July 12-17, 2015.
  61. *I. Estrada-Guel*, A. O. Okonkwo§, **F.C. Robles Hernandez**<sup>††</sup>, Graphene related nanostructures synthesized by high-energy ball milling, Microscopy and Microanalysis Conference, Oregon Convention Center, Portland, Oregon, August 2-6, 2015.
  62. *H. A. Calderon*, Y. Liang§, H. D. Yoo§, Y. Li§, S. Jing§, **F. C. Robles Hernandez**, Y. Yao, Low Dose Electron Microscopy of Interlayer Expanded Molybdenum Disulfide Nanocomposites, Microscopy and Microanalysis Conference, Oregon Convention Center, Portland, Oregon, August 2-6, 2015.
  63. *J. Bao*, S. Baldelli§, **F. C. Robles Hernandez**, R. Zhifeng§, Efficient solar water-splitting using a nanocrystalline CoO photocatalyst, First Conference in Artificial Photosynthesis, Cocoyoc Mexico, November 2-6, Morelos, Mexico. *Invited Talk*
  64. **F. C. Robles Hernández**<sup>††</sup>, A. K. P. D. Savio§, J. Fletcher§, R. Iyer, J. Bao, Overview of the Synthesis and Catalytic Activity of TiO<sub>2</sub>, First Conference in Artificial Photosynthesis, Cocoyoc Mexico, November 2-6, Morelos, Mexico. *Invited Talk*
  65. **F. C. Robles Hernandez**, H. A. Calderon, D. Barber§, A. Okonkwo§, J. Quintero§, R. Ordoñez Olivares§, V. Hadjiev, F. Alvarez, Unprecedented elastic behavior induced by in situ reinforced all carbon composites, Monclova Coah., Mexico, “VII Congreso Internacional de Metalurgia y Materiales”, April 3-4, 2014.

66. *I. Estrada-Guel, F.C. Robles Hernandez, R. Martínez-Sánchez, A Green Method for Graphite Exfoliation Using a Mechanochemical Route, M&M 2014, August 3-7, Connecticut Convention Center, Hartford, CT, 2014.*
67. *I. Estrada-Guel, F.C. Robles Hernandez, R. Martínez-Sánchez, A Green Method for Graphite Exfoliation, Effect of Milling Intensity, M&M 2014, August 3-7, Connecticut Convention Center, Hartford, CT, 2014.*
68. *Y. Wang§, S. Xing§, X. Lu§, F. Robles Hernandez, S-S Pei, J. Bao, Twisted Bilayer Graphene with Controlled Rotation Angles, Bulletin of the American Physical Society, American Physical Society, Session B37: Focus Session: Graphene Stacking Sequence, Including Twisted Bilayers, March 3–7, 2014; Denver, Colorado.*
69. *J. Nguyen§, J. A. Neal, F. C. Robles Hernández, T. R. Lee, Prevalence of Nanotubes in Irradiated Food Packaging and the Potential Impact on Health, 247th ACS National Meeting & Exposition, Dallas March 16-20, 2014.*
70. *A. O. Okonkwo§, P. Jagdale, A. Tagliaferro, V. G. Hadjiev, F. C. Robles Hernandez<sup>‡†</sup>, Development of Cost Effective Structural Material Reinforced with Complex Carbon Nanostructures For Multiple Applications, International Materials Research Congress, Cancun, 2014.*
71. *A. O. Okonkwo§, V. Kadekar, T. Metz, D. Gutscher, F. C. Robles Hernandez<sup>‡†</sup>, Laser Processing to Improve Track Safety, Ridership and Efficiency, International Materials Research Congress, Cancun, August 17-21, 2014.*
72. *E. Obiry§, A. O. Okonkwo§, A. Guloy, F. C. Robles Hernandez<sup>‡†</sup>, A Comparison of different Sintering methods in the development of Al<sub>2</sub>O<sub>3</sub> nanostructured composites reinforced with carbon nanostructures, International Materials Research Congress Cancun, August 17-21, 2014.*
73. *V. Gómez Flores§, P. E. García Casillas§, K. Y. Castrejón Parga§, C. C. Gonzalez§, A. Jimenez Pérez§, F. C. Robles Hernandez<sup>‡†</sup>, Polymeric biomaterials reinforced with nanometer carbon and magnetite, ISMANAM 2014, Cancun, México June 29 to July 4, 2014.*
74. *H. A. Calderon, D. Barber§, F. Alvarez Ramirez, A. Okonkwo§, J. Quintero, R. Ordoñez Olivares, V. Hadjiev, F. C. Robles Hernandez<sup>‡†</sup> Pure elastic phenomena in all carbon composites and applications, MRS Cancun XXII International Materials Research Congress, Cancun, Qro. Mexico, August 11-15, 2013.*
75. *J. F. Eberth, C.N. Brysch§, M. Paterson§, R. Ordoñez Olivares, F.C. Robles Hernandez<sup>‡†</sup>, Chitosan and Chitosan Composites Reinforced with Carbon Nanostructures, MRS Cancun XXII International Materials Research Congress, Cancun, Qro. Mexico, August 11-15, 2013.*
76. *A. K. P. D. Savio§, J. Fletcher§, R. Iyer, F. C. Robles Hernández, Photodegradation of Paraoxon using doped sonosynthesized TiO<sub>2</sub>, MRS Cancun XXII International Materials Research Congress, Cancun, Qro. Mexico, August 11-15, 2013.*
77. *H. A. Calderon, D. Barber§, A. Okonkwo§, J. Quintero§, R. Ordoñez Olivares, V. G. Hadjiev, F. C. Robles Hernandez<sup>‡†</sup>, Effective Reinforcement in carbon-carbon composites, ISMANAM 2013, Turin Italy, June 30 - July 5, 2013.*
78. *A. Okonkwo§, D. Gutscher, F. C. Robles Hernandez<sup>‡†</sup>, Laser Cladding of Welds to Improve Railroad Track Safety, ISMANAM 2013, Turin Italy, June 30 - July 5, 2013.*
79. *C.N. Brysch§, M. Paterson§, R. Ordoñez Olivares, J. F. Eberth, F.C. Robles Hernandez, Chitosan and Chitosan Composites Reinforced with Carbon Nanostructures, ISMANAM 2013, Turin Italy, June 30 - July 5, 2013.*
80. *J. Bao, L. Liao§, Q. Zhang, Z. Su§, X. Lu§, D. Wei, G. Feng, Q. Yu, X. Cai, F. Robles-Hernandez, S. Baldell, Nanocrystalline CoO as an efficient photocatalyst for total water splitting driven by visible light, New Orleans Convention Center, ACS National Meeting*

- 2013, division of Energy and Fuels, Solar Energy and Solar fuels, April 7-11, New Orleans, LA 2013.
81. *J. Bao*, L. Liao, Q. Zhang, Z. Z. Su, D. Wei, Q. Yu, S. Baldelli, **F. Robles Hernandez**, X. Cai, Nanocrystalline CoO as an Efficient Photocatalyst for Total Water Splitting Driven by Visible Light, MRS Spring Meeting, San Francisco, CA April 1-5 2013.
  82. Z Su§, Y Wang§, W Wu§, S Xing, X Lu§, X Lu§, S Pei, **FC Robles Hernandez**, VG Hadjiev, *J Bao*, 2D line enhancement by quantum interference in graphene superlattice Bulletin of the American Physical Society, March 18-22, 2013 Baltimore, Maryland.
  83. *Y Wang§*, Z Su§, W Wu§, S Xing§, X Lu§, X Lu§, S Pei, **FC Robles Hernandez**, V Hadjiev, *J. Bao*, Folded Optical Phonons in Twisted Bilayer Graphene: Raman Signature of Graphene Superlattices, Bulletin of the American Physical Society, March 18-22, 2013 Baltimore, Maryland.
  84. N. Badi, J. Kodali§, **F.C. Robles Hernandez**, A. Okonkwo§, M. Hobosyan, K. S. Martirosyan, Low cost carbon-silicon nanostructures for high performance electrochemical anode materials, Nanotech Conference and Expo 2013, May 12-16, Washington D.C. 2013.
  85. N. Badi, R. Mekala§, **F. Robles Hernandez**, Synthesis of Al-Al<sub>2</sub>O<sub>3</sub>/PVDF Core-Shell Nanodielectrics for Energy Storage Applications, Nanotech Conference and Expo 2013, May 12-16, Washington D.C. 2013.
  86. *J. Bao*, Y. Wang§, Z. Su§, W. Wu§, S. Nie§, X. Lu§, X. Lu§, S. Xing§, H. Wang§, K. McCarty, S. Pei, **F. Robles-Hernandez**, V. Hadjiev, Bilayer graphene superlattices, 2012 Southwest Regional ACS Meeting, Conjugated-Carbon Nanostructures: Conjugated Carbon Nano Structures: Theory and Applications, November 4-7, 2012. **Invited Presentation.**
  87. **F. C. Robles Hernández**†‡, D. Barber§, J. Quintero§, A. E. Fals§, Solid State Synthesis of Carbon Nanostructures and Applications, 2012 Southwest Regional ACS Meeting, Conjugated-Carbon Nanostructures: Molecular Topology, Tunable Properties and Applications, November 4-7, 2012. **Invited Speaker.**
  88. R. Ordóñez Olivares, C.I. Garcia, **F. C. Robles Hernández**†‡, “Metallurgy of High Carbon Steels for Railroad Applications”, Ferrous and Base Metals Development Network Conference, South Africa, Magaliesburg, 2012 **Keynote Speaker.**
  89. D. Barber§, H. A. Calderon, **F. C. Robles-Hernandez**†‡, Thermo-mechanical Synthesis of Carbon Nanostructures and Microstructured Diamond, International Conference on Diamond and Carbon Materials 2012, Granada, Spain, September 3-6, 2012.
  90. **F. C. Robles Hernandez**†‡, D. Barber§, H. A. Calderon, Microscopy Characterization of C Phases Induced by C Soot Ball Milling, International Conference on Diamond and Carbon Materials 2012, Granada, Spain, September 3-6, 2012.
  91. A. E. Fals§, **F. C. Robles Hernandez**†‡, Multi-Functional Fullerene Soot/Alumina Composites, ASME Conference, Houston, TX, Nov. 9-15, 2012.
  92. D. Barber, H. A. Calderon, F. C. Robles Hernandez, Synthesis of Carbon Canostructures by Thermo-Mechanical Means, ASME Conference, Houston, TX, Nov. 9-15, 2012.
  93. I. D. Weerasinghe, L. de la Torre Garcia, **F. C. Robles Hernandez**, Transient and Steady State Analysis of a Cross Flow, Gas-Liquid Type Heat Exchanger in a Oil-Fired Mobile Frac Water Heating System, ASME Conference, Houston, TX, Nov. 9-15, 2012.
  94. C. Brysch, **F. C. Robles Hernandez**, J. F. Eberth, Sintering of Chitosan and Chitosan Composites, ASME Conference, Houston, TX, Nov. 9-15, 2012.
  95. R. Ordóñez Olivares, C.I. Garcia, A. DeArdo, S. Kalay, **F.C. Robles Hernández**†‡, Metallurgy of High Carbon Steels for Railroad Applications, V Congreso Internacional de Metalurgia y Materiales, Physical Metallurgy: Steels, Monclova Coah., Mexico, September 28-30, 2011. **Invited Presentation: Key Note Speaker**

96. **F. C. Robles Hernández**<sup>‡†</sup>, H. A. Calderon, Composites Reinforced with Carbon Nanostructures an Overview, XX International Materials Research Congress, Cancun, August 2011. **Invited Presentation**
97. I. Santana-Garcia§, **F. Robles Hernandez**, *H.A. Calderon*, Metal (Fe-Al)-Fullerene Nanocomposites Made by Powder Metallurgy Methods, TMS Annual Meeting, San Diego, March 3, 2011.
98. *M.A. Mohamed*, B. Barnett, **F.C. Robles Hernandez**, J.F. Eberth. “Quantifying Elastic Fiber Network Fragmentation Using Raman Spectroscopy,” MAES 37th Annual Symposium, Oakland California (2011). **Best Poster Award**
99. *M.A. Mohamed*§, Barnett B§, **F. C. Robles Hernandez**, J.F. Eberth. “Evaluation of Aortic Elastic Fiber Network Damage,” University of Houston, Undergraduate Research Day (2011).
100. A. J. Corsi, **F. C. Hernandez Robles**, Jack A. Neal, Electron Beam irradiation for the reduction of 2 4 6 trichloroanisole in wine cork, Institute of Food Technologists (IFT) conference, New Orleans LA, Poster Presentation, June 2011.
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