

## Deidra Hodges, Ph.D.

Assoc. Prof. and former Dept. Chair, Electrical and Computer Engineering  
Florida International University  
10555 West Flagler St., EC3141  
Miami, FL 33174

Email: [dhodges@fiu.edu](mailto:dhodges@fiu.edu)  
Web: <https://hodgesgroup.org/>  
Office: 305-348-5091

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### EDUCATION

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|-------|---------------------------------------|------------------------|------|
| Cert. | Massachusetts Institute of Technology | Quantum Computing      | 2023 |
| Ph.D. | University of South Florida Tampa, FL | Electrical Engineering | 2009 |
| M.S.  | Columbia University, New York, NY     | Electrical Engineering | 1984 |
| B.S.  | Columbia University, New York, NY     | Electrical Engineering | 1983 |
| B.S.  | Dillard University, New Orleans, LA   | Physics                | 1982 |

### APPOINTMENTS AND POSITIONS

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|-------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 2026 -      | Associate Professor, Florida International University, Dept. of Electrical and Computer Engineering, Miami, Florida, United States      |
| 2022 - 2026 | ECE Department Chair and Associate Professor, Florida International University, Electrical and Computer Engineering, Miami, Florida, US |
| 2021 - 2022 | Associate Professor, Florida International University, Dept. of Electrical and Computer Engineering, Miami, Florida, United States      |
| 2021 - 2021 | Visiting Scientist, Kansas City National Security Center, Global Security, Kansas City, Missouri, United States                         |
| 2020 - 2021 | Associate Professor, University of Texas at El Paso, Electrical and Computer Engineering, El Paso, Texas, United States                 |
| 2018 - 2023 | Editorial, Elsevier's Material Science in Semiconducting Processing, Oxford, Not Applicable, N/A, United Kingdom                        |
| 2014 - 2020 | Visiting Scientist, Brookhaven National Laboratory, Nonproliferation and National Security, Upton, New York, United States              |
| 2014 - 2020 | Assistant Professor, University of Texas at El Paso, Electrical and Computer Engineering, El Paso, Texas, United States                 |
| 2010 - 2014 | Assistant Professor, Southern Polytechnic State University, Electrical and Computer Engineering, Marietta, Georgia, United States       |
| 1989 - 1993 | Senior Systems Engineer, Martin Marietta Manned Space Systems, New Orleans, Louisiana, United States                                    |
| 1988 - 1996 | Officer, U.S. Navy Reserves - Engineering Field Division, Houston, Texas, United States                                                 |
| 1984 - 1989 | Software Engineer, IBM Federal Systems Division, Clear Lake City, Texas, United States                                                  |

## ADMINISTRATIVE APPOINTMENT/RESPONSIBILITIES

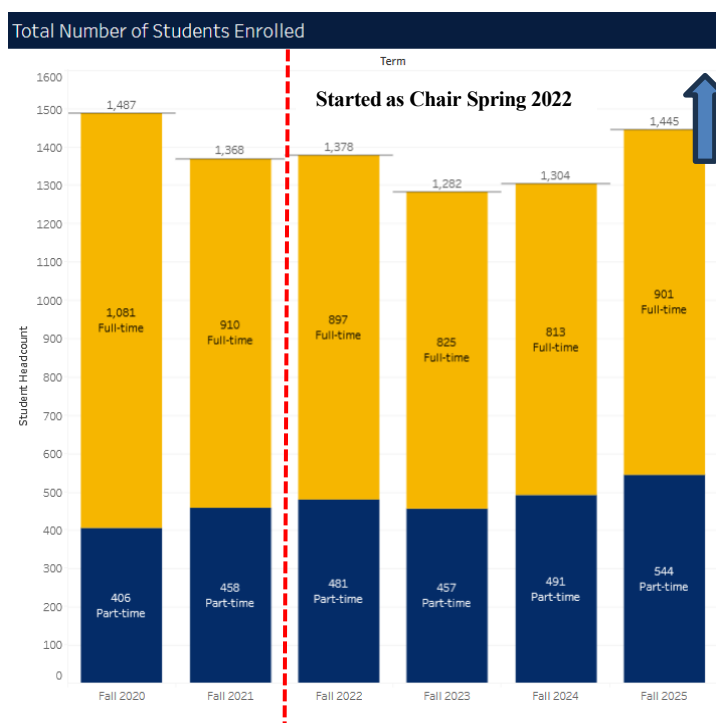
As Chair of the Department of Electrical and Computer Engineering at FIU, several transformative initiatives to enhance academic excellence, faculty development, and student success were initiated. Key responsibilities and accomplishments include the following areas, with details highlighted below.

- **Strategic Leadership & Vision - Faculty Development - Curriculum Enhancement**
- **Research Growth - Student Success Initiatives - Infrastructure Improvements**
- **Industry Partnerships**

### Departmental Impact and Recognition

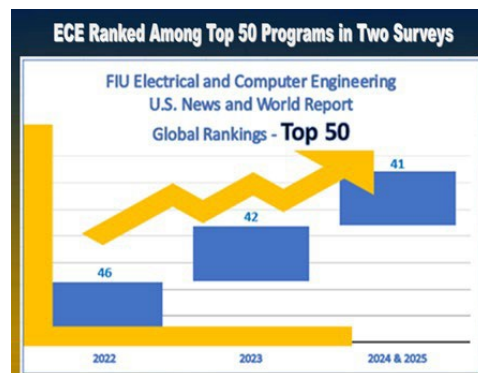
#### 1. Record High ECE Enrollments in Fall 2025

ECE has achieved a 5-year record high Fall 2025 enrollment, and is on track to achieve an all-time record high enrollment with Fall 2025 enrollments still ongoing. Changes were made to ECE curricula to introduce new courses, enhance areas of study, AI Infusion in Engineering, and online modalities. Student surveys were performed, meetings with industry stakeholders were held to assess needs, and market analyses were reviewed to strategize curricula changes with faculty. Identified changes are being rolled out in phases.



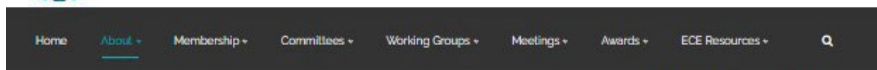
#### 2. Top 50 Program Ranking in 2 Surveys

Under the leadership of Chair Hodges, ECE rose in the rankings to the Top 50. FIU's Electrical and Computer Engineering (ECE) program is highly regarded, with specific rankings varying by source and focus. The QS World University Rankings places it within the 29-34 range among U.S. public universities. Additionally, U.S. News & World Report ranks the program 41st globally among public universities.



### 3. ECEDHA Board Member – Vice President

Elected to the Board of Directors of the ECEDHA Organization in 2024-2025. Began as secretary, and I am currently serving as Vice-President, 2026-2027. The Electrical and Computer Engineering Department Head Association (ECEDHA) is the premier academic association of its kind encompassing all major electrical engineering, computer engineering, and related programs at universities across North America. ECEDHA is the leading association for electrical and computer engineering educators, composed of nearly 250 ABET-accredited ECE university department heads or chairs from across the United States and Canada. In addition to serving on the Board of Directors as Treasurer, I also serve on and contribute to the Program Committee and Membership Committee. I attend the annual national conference and the regional conference, working with ECE Chairs on the latest



#### 2026-2027 ECEDHA Board of Directors



Past President  
Mark McKinney  
The Citadel, Military College of South  
Carolina



President  
Michael Wu  
University of Arizona



Vice President  
Deidra Hodges  
Florida International University

issues and solutions,  
and working with  
ECE major vendors.  
Served as a panelist on  
Quantum in ECE at  
the national  
conference.

### 4. Nuclear Engineering Fundamentals and I&C

ECE Nuclear Engineering Concentration - Introduction and Fundamentals: Open to All Disciplines and has a Physics prerequisite. new course was developed and taught as a result of meetings with Florida Power and Light (FPL), NextEra Energy, and Idaho National Lab (INL) to develop a workforce pipeline. The course was first taught in Spring 2024 and open to all students with a Physics prerequisite. The course was successful with students from Physics and has expanded to include ME students in the following course. Equipment and materials were purchased by the instructor for hands-on training and labs. FPL/NextEra hosted the students for a day at Turkey Point Power Plant. Students toured the Nuclear Reactors, the control room, the reactor cooling canals, and a power transmission station. Students experience simulated drills in the control room, with control room operators and simulated alarms. Students received internships. INL's Chief Technical Officer and the Chief Materials Scientist taught lectures and engaged students. We collaborated with the University of Florida regarding Nuclear Engineering and participated in the UF Reactor Sharing program.





## 5. 7-Year Review

The Board of Governors (BOG) requires the periodic review of all academic degree programs in State University System institutions at least once every seven years from the date of the preceding review or from the implementation date of new academic programs. The 7 Year Review for the department occurred after the successful completion of our ABET Accreditation. This work was tasked to the Chair, and occurred last summer. This also required a significant amount of time, as different information was required, in addition to some information required by ABET. This was another great learning experience for Chair Hodges, locating and gathering the required data, and analyzing and reporting out the results. Attached is a copy of the 7 Year Review for the ECE 11 programs including: 1. B.S. in Computer Engineering 2. B.S. in Computer Engineering Online 3. B.S. in Electrical Engineering 4. B.S. in Electrical Engineering Online 5. M.S. in Computer Engineering 6. M.S. in Electrical Engineering 7. M.S. in Network Security 8. B.S. in Internet of Things 9. B.S. in the Internet of Things Online 10. M.S. in the Internet of Things 11. Ph.D. in Electrical and Computer Engineering Major accomplishments reported 1) Top 50 and Rising in the Rankings, 2) High Enrollments in the Thousands, 3) the only 100% Online ABET Accredited EE and CpE Programs in the State of Florida.

## PUBLICATIONS

### Articles

1. M. Abrar, I. J. Biswas, S. Datta, and **D. Hodges**, "Optimization of Pb-free Highly Efficient CS<sub>2</sub>AgInBr<sub>6</sub> Double Perovskite Solar Cells: A Numerical Investigation using SCAPS," in *Journal of Electronic Materials*, 2025.
2. S. Datta, A. Baul, G. C. Sarker, P. K. Sadhu, and **D. R. Hodges**, "A Comprehensive Review of the Application of Machine Learning in Fabrication and Implementation of Photovoltaic Systems," *IEEE Access*, vol. 11, pp. 77750-77778, 2023.
3. M. Dolafi Rezaee, B. Dahal, J. Watt, M. Abrar, **D. R. Hodges**, and W. Li, "Structural, Electrical, and Optical Properties of Single-Walled Carbon Nanotubes Synthesized through Floating Catalyst Chemical Vapor Deposition," *Nanomaterials*, vol. 14, p. 965, 2024.
4. M. T. Islam, M. R. Jani, S. Rahman, K. M. Shorowordi, S. S. Nishat, **D. Hodges**, *et al.*, "Investigation of non-Pb all-perovskite 4-T mechanically stacked and 2-T monolithic tandem solar devices utilizing SCAPS simulation," *SN Applied Sciences*, vol. 3, pp. 1-12, 2021.
5. A. Bolotnikov, G. Camarda, G. De Geronimo, J. Fried, **D. Hodges**, A. Hossain, *et al.*, "A 4×4 array module of position-sensitive virtual Frisch-grid CdZnTe detectors for gamma-ray imaging spectrometers," *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, vol. 954, p. 161036, 2020.
6. Luis Valerio Frias, Angel De La Rosa, Victor Rodriguez, Christian Enriquez, Alberto Telles, Yves Ramirez, Daniel Rivera, Javier Herrero, Luis Bustamente, Xiao Tong and **Deidra Hodges**, "Characterization and Analysis of Device Fabrication Process for Performance Optimization of Perovskite Solar Cells", *AIP Advances*, October, 2019.
7. Shaimum Shahriar, Venessa Castaneda, Manuel Martinez, Aditya Mishra, Tahmina Akter, Kelly Schutt, Jorge Boscoboinik and **Deidra Hodges**, "Oxidation States in perovskite layers formed using various deposition techniques", *Journal of Renewable and Sustainable Energy*, October, 2019.
8. Felicia Manciu, Kevin Bennet, Yoonbae Oh, Abhijeet Barath, Aaron Rusheen, Abbas Kousani, **Deidra Hodges**, Jose Guerrero, Jonathan Tomshine, and Kendall Lee, "Analysis of Carbon-based Microelectrodes for Neurochemical Sensing", *Materials*, October, 2019.
9. Castro-Colin, M., L. Banuelos, C. Diaz-Moreno, **Deidra Hodges**, E. Ramirez-Homs, D. Korolkov, N. Sharmin, and J. A. Lopez. "Temperature Effects in the Composition of Metal Halide Perovskite Thin Films", *Journal of Nuclear Physics, Materials Sciences, Radiation and Applications*, August 2018.
10. Rosales, C. A. G., Duarte, M. F. G., Kim, H., Chavez, L., **Hodges, Deidra**, Mandal, P., & Tseng, T. L. B. 3D printing of shape memory polymer (SMP)/carbon black (CB) nanocomposites with electro-responsive toughness enhancement. *Materials Research Express*, 2018.

11. L. O. Giraldo, A. Bolotnikov, G. Camarda, G. De Geronimo, J. Fried, **D. Hodges**, A. Hossain, E. Vernon, and R.B. James, "A linear array of position-sensitive virtual Frisch-grid CdZnTe for low-energy gamma rays." *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 2018.
12. Luis O. Giraldo, Aleksey Bolotnikov, G. Camarda, G. De Geronimo, J. Fried, R. Gul, **D. Hodges**, A. Hossain, E. Vernon, and R.B. James, "Study of sub-pixel position resolution with time-correlated transient signals in 3D pixelated CdZnTe detectors with varying pixel sizes," *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 2017.
13. Luis Ocampo Giraldo, Aleksey E. Bolotnikov, G.S. Camarda, S. Cheng, G. De Geronimo, A. McGilloway, J. Fried, **D. Hodges**, A. Hossain, K. Ünlü, M. Petryk, Valerie Vidal, E. Vernon, G. Yang and R.B. James, Using a pulsed laser beam to investigate the feasibility of sub-pixel position resolution with time correlated transient signals in 3D pixelated CdZnTe detectors, *Nuclear Inst. and Methods in Physics Research, A*, 2017.
14. Eva M. Deemer, P. K. Paul, Felicia S. Manciu, C. E. Botez, **Deidra R. Hodges**, Z. Landis, *et al.*, "Consequence of oxidation method on graphene oxide produced with different size graphite precursors," *Materials Science and Engineering: B*, vol. 224, pp. 150-157, 2017.
15. Aditya Mishra, J. Catalan, D. Camacho, M. Martinez, and **Deidra Hodges**, "Evaluation of physics-based numerical modelling for diverse design architecture of perovskite solar cells," *Materials Research Express*, vol. 4, p. 085906, 2017.
16. Aditya Mishra, **Deidra Hodges**, and R. Misra, "Influence of processing temperature and precursor composition on phase region of solution processed methylammonium lead iodide perovskite," *Materials Research Express*, vol. 4, p. 096201, 2017.
17. Aditya Mishra, A. Kumar, **Deidra Hodges**, and R. Misra, "Tunable TiO<sub>2</sub>-pepsin thin film as a low-temperature electron transport layer for photoelectrochemical cells," *Materials technology*, vol. 32, pp. 829-837, 2017.
18. Manuel Martinez, Shaimum Shahriar, Donato Kava, Cheik Sana, Vanessa Castañeda, Jose Galindo, **Deidra Hodges**, "Effects of Processing Parameters on Zinc Oxide Thin Films Prepared by Single Solution Deposition," *MRS Advances*, 2016
19. Karim, H., Sarker, M. R. H., Shahriar, S., Shuvo, M. A. I., Delfin, D., **Hodges, D. R.**, Tseng, T.-L. B., Roberson, D. A., Love, N. D., Lin, Y, "Feasibility study of thermal energy harvesting using lead free pyroelectrics", *Smart Materials and Structures*, 25(5), 055022, 2016.
20. Aleksey Bolotnikov, Kim Ackley, Giuseppe S. Camarda, Carly Cherches, Yonggang Cui, Gianluigi De Geronimo, Jack Fried, **Deidra Hodges**, Anwar Hossain, Wonho Lee, George Mahler, Maxwell Maritato, Matthew Petryk, Utpal Roy, Cynthia Salwen, Emerson Vernon, Ge Yang, and Ralph James, "An array of virtual Frisch-grid CdZnTe detectors and a front-end ASIC for large-area position-sensitive gamma-ray cameras", *Review of Scientific Instruments*, 2015.

## Proceedings

1. M. Abrar, I. J. Biswas, S. Datta, and **D. Hodges**, "A Numerical Investigation of Pb-free Highly Efficient CS<sub>2</sub>AgInBr<sub>6</sub> Double Perovskite Solar Cells using SCAPS," in *2024 IEEE 52nd Photovoltaic Specialist Conference (PVSC)*, 2024, pp. 1710-1712.
2. Datta, G. C. Sarker, A. Baul, M. Abrar, and **D. R. Hodges**, "Investigating the Role of Machine Learning and Deep Learning for Determining the Performance of Perovskite-Based Solar Cells," in *2024 IEEE 52nd Photovoltaic Specialist Conference (PVSC)*, 2024, pp. 1647-1652.
3. **D. Hodges**, Y. Ramirez, J. Marquez, G. Ortiz, G. Camarda, L. Ocampo, *et al.*, "Mobility-lifetime Product Characterization of Long CdZnTe Room-temperature Semiconductor Gamma-ray Detectors," in *INMM & ESARDA Joint Annual Meeting "Advancing Together: Innovation and Resilience in Nuclear Materials Management"*, 2021.
4. Y. Ramirez and **D. Hodges**, "Improving the Efficiency of A Portable Room-temperature CZT Gamma-ray Spectrometer," in *INMM & ESARDA Joint Annual Meeting "Advancing Together: Innovation and Resilience in Nuclear Materials Management"*, 2021.
5. J. Marquez, Y. Ramirez, G. Ortiz, A. Bolotnikov, and **D. Hodges**, "Single Crystal Perovskites for High Energy Radiation Detection," in *INMM & ESARDA Joint Annual Meeting "Advancing Together: Innovation and Resilience in Nuclear Materials Management"*, 2021.
6. Y. A. Ramirez, A. De La Rosa, C. H. Enriquez, D. A. Rivera, V. M. Rodriguez, A. J. Telles, **D. Hodges**, *et al.*, "High-Voltage Hybrid Organic-Inorganic Perovskite Solar Cells," in *2021 IEEE 48th Photovoltaic Specialists Conference (PVSC)*, 2021, pp. 2303-2306.
7. D. Sherman, J. Marquez, Y. Ramirez, M. Urbina, A. Meza, and **D. Hodges**, "Monocrystalline Silicon Solar Cell Simulation With Reduced Absorber Thickness and Efficiency Exceeding 25%," in *2021 IEEE 48th Photovoltaic Specialists Conference (PVSC)*, 2021, pp. 2640-2642.
8. J. Marquez, Y. Ramirez, G. Rodriguez, M. Urbina, D. Sherman, A. Meza, **D. Hodges**, *et al.*, "Timeline for Successful Commercialization of Thin-film Perovskite Solar Cells," in *2021 IEEE 48th Photovoltaic Specialists Conference (PVSC)*, 2021, pp. 2426-2429.
9. N. Joseph, S. Bernadin, **D. Hodges**, and P. Sekhar, "A Case Study on using Unstructured Data Analysis Methods to identify local Covid-19 Hotspots," in *SoutheastCon 2021*, 2021, pp. 1-4.
10. **D. Hodges**, L. V. Frias, A. De La Rosa, A. I. Leyva, and X. Tong, *Synchrotron and optical probing of mixed lead halide perovskites for photovoltaics* vol. 11474: SPIE, 2020.
11. **D. Hodges**, S. Shahriar, C. Camarillo, C. Maldonado, Y. Ramirez, V. Rodriguez, *et al.*, "Synchrotron and optical probing of hybrid organic-inorganic perovskite halides for photovoltaics," in *2019 IEEE 46th Photovoltaic Specialists Conference (PVSC)*, 2019, pp. 1170-1174.
12. C. Enriquez, **D. Hodges**, A. De La Rosa, L. V. Frias, Y. Ramirez, V. Rodriguez, *et al.*, "Perovskite Solar Cells," in *2019 IEEE 46th Photovoltaic Specialists Conference (PVSC)*,

- 2019, pp. 1157-1160.
13. Victor Rodriguez, "Manufacturing Processes for the Creation of 15% Power Conversion Efficiency Inorganic Inorganic-Organic Perovskite Solar Cells," in *2019 IEEE 46th Photovoltaic Specialists Conference (PVSC)*, 2019, pp. 1-4.
  14. Irakli Chakaberia; Mircea Cotlet; Merlin Fisher-Levine; **Deidra R. Hodges**; Jayke Nguyen; Andrei Nomerotski; "Time stamping of single optical photons with 10 ns resolution". *Proc. SPIE Advanced Photon Counting Techniques XI*, 102120Q, May 2017.
  15. Nazia Sharmin, J. Lopez, **Deidra Hodges**, Shaimum Shahriar, Venassa Castaneda, and Aditya Kumar, "Degradation of perovskite samples over time," *Bulletin of the American Physical Society*, vol. 61, 2016.
  16. Shaimum Shahriar, Cheik Sana, Jose Galindo, Donato Kava, **Deidra Hodges**, Edison Castro, Robert Cotta, David Buck, and Luis Echegoyen, "Characterization and Analysis of Structural and Optical Properties of Perovskite Thin Films" in *42<sup>th</sup> IEEE Photovoltaic Specialists Conference Proceedings*, New Orleans, LA, 2015.
  17. Jose Galindo, Donato Kava, Shaimum Shahriar, Cheik Sana, Edison Castro, Robert Cotta, David Buck, and Luis Echegoyen and **Deidra Hodges**, "Low Cost Spin Coating Fabrication of Efficient Perovskite Thin Film Layers" in *42<sup>th</sup> IEEE Photovoltaic Specialists Conference Proceedings*, New Orleans, LA, 2015.
  18. **Deidra Hodges**, Cheik Sana, Shaimum Shahriar, Jose Galindo, Donato Kava, Edison Castro, Robert Cotta, David Buck, and Luis Echegoyen "Earth Abundant and Nontoxic Material for Low Cost, Thin Film Solar Cells" in *2015 IEEE Conference on Technologies for Sustainability (SusTech)*, Ogden, Utah, 2015.
  19. Okhio, Cyril, **Hodges, Deidra R.**, Black, Jennifer. (2010). Review of literature on nanofluid flow and heat transfer properties. *Cyber Journals: Multidisciplinary Journals in Science and Technology, Journal of Selected Areas in Nanotechnology (JSAN)*, 1, 1–8.
  20. **Hodges, Deidra R.**, Jones, B., Moseley, T., Love, A., Burke, C., Jones, E., Tyx, I., Chaulogain, M., Johnson, O., "Development of CZTS Thin Films by Non-vacuum, Liquid-based Techniques for Efficient, Low-cost CZTS Solar Cells", in *39th IEEE Photovoltaic Specialists Conference Proceedings*, Tampa, FL, 2013.
  21. **Hodges, Deidra R.**, Palekis, V., Bhandaru, S., Singh, K., Morel, D. L., Stefanakos, L., "Mechanical properties and adhesion of CdTe/CdS thin film solar cells deposited on flexible foil substrates". *MRS Proceedings*, 1165, 1165–M02, 2009.
  22. Palekis, Vasellis, **Hodges, Deidra R.**, Morel, D. L., Stefanakos, L., Ferekides, C. S., "Structural Properties of CdTe Thin Films for Solar Cell Applications Deposited on Flexible Foil Substrates". *MRS Proceedings*, 1165, 1165–M08, 2009.
  23. Palekis, Vasillis, Guntur, V., **Hodges, Deidra R.**, Morel, D., Stefanakos, E., Ferekides, C., "Substrate based CdTe solar cells fabricated on metallic foils: Device, material, and



- processing issues”, in *Photovoltaic Specialists Conference (PVSC) 37th IEEE*, (pp. 002779–002783), 2011.
24. Palekis, Vasillis, Shen, Donna, **Hodges, Deidra R.**, Bhandaru, S., Stefanakos, E., Morel, D., Ferekides, C., “Structural properties of CdTe and ZnTe thin films deposited on flexible foil substrates”, *Photovoltaic Specialists Conference (PVSC) 35th IEEE*, (pp. 001960–001963), 2010.
  25. Shen, Dona, Palekis, V., **Hodges, Deidra R.**, Bhandaru, S., Guntur, V., Stefanakos, E., Morel, D., Ferekides, C., “Tellurides as back contacts for substrate CdTe thin film solar cells on flexible foil substrates”, *Photovoltaic Specialists Conference (PVSC) 35th IEEE*, (pp. 001973–001976), 2010.
  26. **Hodges, Deidra R.**, Palekis, Vasillis, Shen, Dona, Singh, K., Bhandaru, S., Stefanakos, E., Morel, D., Ferekides, C., “Development of back contacts for CdTe thin film solar cells deposited on flexible foil substrates”. (pp. 001649–001653), 2009.
  27. Zhao Hehong, T. M. Razykov, **Deidra Hodges**, A. Farah, C. S. Ferekides, and D. Morel, "Introduction of Sb in CDTE and its effect on CDTE solar cells," in *Photovoltaic Specialists Conference, PVSC '08. 33rd IEEE*, 2008, pp. 1-5.

## PRESENTED PAPERS AND LECTURES

1. 2024 ECEDHA Annual Conference, Quantum Panelist, Tucson, AZ.
2. DOE/ NREL HOPE, Golden, CO, “Understanding the power of PV and how our research will be used”, 2024.
3. American Physical Society (APS) 2023 April Spring Meeting, Kavli Foundation Plenary Session, Hodges, “Successes and challenges of current and past initiatives in the US
4. Materials and Devices for Energy, Sustainable Manufacturing and Health (MESH), 2022, Hodges, “Synchrotron and Optical Probing of Mixed Halide Perovskites for Photovoltaics and Radiation Detectors”.
5. DOE/ NREL HOPE, Golden, CO, “Understanding the power of PV and how our research will be used”, 2019, 2016, and 2014.
6. OSA NOMA, Invited talk, 2021.
7. BNL CFN, Invited talk, 2021.
8. NC A&T State University Earth Day, Invited panelist, 2021.
9. SPIE Organic, Hybrid, and Perovskite Photovoltaics XXI Conference, San Diego, CA, August 23-27, 2020.
10. BNL CFN, Upton, NY, “Perovskite Photovoltaics and Gamma-ray Radiation Detectors Research Highlights”, 2014-2019.
11. miniCAST Night at the Museum Lightning Talks Energy Sustainability and Photovoltaics October 19, 2018.
12. SUNY Canton, *Women in Engineering*, May 16, 2018.
13. WIN, Thin Film Photovoltaics, Renewable Energy & Sustainability April 5, 2018.
14. Florida International University Fall 2017 Seminar Series Perovskite PV, X-ray and Gamma-ray Detectors November 17, 2017.
15. USF College of Engineering and NREC Seminar Perovskite PV, X-ray and Gamma-ray Detectors October 31, 2017.

16. AVS 64<sup>th</sup> International Symposium, Tampa, FL, “Synchrotron-Based X-ray Spectroscopy Studies of Inorganic-Organic Hybrid Perovskite Materials Surfaces and Properties”, 2017.
17. DOE/ NREL HOPE, Golden, CO, “Understanding the power of PV and how our research will be used”, 2014, 2016, 2019.
18. BNL Visiting Faculty Program (VFP), Upton, NY, “Perovskite PV, X- and  $\gamma$ -ray Detectors”, 2014-2019.
19. IEEE Technologies for Sustainability, Ogden, Utah, “Earth Abundant and Nontoxic Material for Low Cost, Thin Film Solar Cells”, 2015.
20. AVS 62<sup>nd</sup> International Symposium, San Jose, CA, “Spin Coating Thin Film CZTS for Efficient, Low-Cost Solar Cells on Flexible Glass Substrates”, 2015.

## CREATIVE WORK

1. **Deidra R. Hodges**, Yves A. Ramirez, Jesus Marques, German Rodriguez Ortiz, Giuseppe S. Camarda, Luis Ocampo, Aleksey E. Bolotnikov, *Mobility-Lifetime Product Characterization of Long CdZnTe Room-Temperature Semiconductor Gamma-ray Detectors*, Institute Nuclear Materials Management (INMM) & ESARDA, Joint Annual Meeting, 2021.
2. **Deidra Hodges**, Shaimum Shahriar, Clara Camarillo, Carlos Maldonado, Yves Ramirez, Victor Rodriguez, Tahmina Akter, Geoffrey Saupe, Garth Williams, Juergen Thieme, Fernando Camino, Mingxing Li, Mircea Cotlet, Nusnin Akter, J. Anibal Boscoboinik, Luis Ocampo, and Aleksey Bolotnikov, “Synchrotron-Based X-ray Spectroscopy Studies of Inorganic-Organic Hybrid Perovskite Materials Surfaces and Properties”, in *46<sup>th</sup> IEEE Photovoltaic Specialists Conference Proceedings*, in Chicago, IL, 2019. **Nominated for Best Poster award.**
3. **Deidra Hodges**, Kelly Schutt, Bernard Wenger, Shaimum Shahriar, Clara Camarillo, Carlos Maldonado, Yves Ramirez, Victor Rodriguez, Tahmina Akter, Geoffrey Saupe, Garth Williams, Juergen Thieme, Fernando Camino, Mingxing Li, Mircea Cotlet, Nusnin Akter, J. Anibal Boscoboinik, Luis Ocampo, Aleksey Bolotnikov and Henry J. Snaith, “Synchrotron-Based X-ray Spectroscopy Studies of Inorganic-Organic Hybrid Perovskite Materials Surfaces and Properties”, *11<sup>th</sup> International Conference on Inelastic X-ray Scattering (IXS2019)*, Stony Brook University, NY, 2019.
4. Angel De La Rosa, “Fabrication of Single Perovskite Solar Cells and Projection to Increase  $V_{oc}$  via  $SnO_2$  Experimentation”, *11<sup>th</sup> International Conference on Inelastic X-ray Scattering (IXS2019)*, Stony Brook University, NY, 2019
5. Luis Valerio, “Analysis of Device Fabrication’s Process for Optimization of Perovskite Solar Cells”, *11<sup>th</sup> International Conference on Inelastic X-ray Scattering (IXS2019)*, Stony Brook University, NY, 2019
6. RICE University: Materials Today: Materials Science for the Next Two Decades Synchrotron and Optical Probing of Hybrid Organic-Inorganic Perovskite Halides for Photovoltaics September 27, 2018.
7. **Deidra Hodges**, Shaimum Shahriar, Venassa Castaneda, Aditya Kumar, Valarie Vidal, Manuel Martinez, Nazia Garcia, Jazmin Munoz, and Jenny Lopez, “Synchrotron-Based X-ray Spectroscopy Studies of Inorganic-Organic Hybrid Perovskite Materials Surfaces and Properties”, *AVS 64<sup>th</sup> International Symposium*, Tampa, FL 2017.

8. Jose Galindo, Chiek Sana, Shaimum Shahriar, Donato Kava, Manuel Martinez, Vanessa Castañeda, **Deidra Hodges**, "Room Temperature Processed CuSCN Hole Transportation Layers for the Use in Perovskite Based Solar Cells," *MRS Spring Meeting*, Phoenix, Arizona, 2016.
9. MRS 2016 Spring Meeting, Phoenix, AZ, 2016.
10. 42<sup>nd</sup> IEEE Photovoltaics Specialists Conference, New Orleans, LA, 2015.

## FUNDED RESEARCH

1. Handheld Skin Imaging System with AI-Assisted Time Dependent Monitoring for Increased Prevention and Early Stage Skin Cancer Detection, Florida Dept. of Health, April 2026 to March 2027, PI Hodges, \$206,501.19
2. The AGEF Florida Alliance Model: Improving Pathways in the Professoriate for Academic Minority Women in STEM, NSF, Fall 2019, PI Hodges, \$347,449
3. SII-Center: SpectrumX: Broadband Mapping Using Smartphones (Broadband MAP US), University of Notre Dame, Spring 2023, PI Hodges, \$345,386
4. NREL STAR, Summer 2024, PI Hodges, \$10,046.58
5. Fairchilds Innovation Studio Makerspace-Jose Cosio Fellowship, Fairchild Tropical Botanic Garden, Fall 2023, PI Hodges, \$26,500
6. Environmental and Natural Resources Technology Center (EARTH), Eastern Iowa Community College, PI Hodges, Spring 2022, \$175,000
7. Hodges, Deidra R (PI), "NSF Convergence Accelerator: Sustainable Systems Enabling Food Security in Extreme Environments and Food Deserts employing a Convergence of Food, Energy, Water and Systems" \$93,546, Sponsored by NSF, \$93,546, (March 1, 2021 to August 31, 2021).
8. Hodges, Deidra R (PI), "Synchrotron and Optical Probing of Hybrid Organic-Inorganic Perovskite Halides for All-Perovskite Triple Junction (a-P3J) Tandem Photovoltaics", Sponsored by the Sloan Foundation, \$10,000, Aug. 1, 2019 – May 31, 2020.
9. Hodges, Deidra R (Co-PI), Ramana, Chintalapalle (PI), "Acquisition of an Atomic Layer Deposition System to Realize Advanced High Electrical Strength Materials for Extreme Environment Applications," \$590,000. Sponsored by ARO, (June 21, 2019 - Present). Equipment grant.
10. Hodges, Deidra R (Co-PI), "Investigation and Study of Hybrid Perovskite Halides for X-and Gamma-ray Detectors and Photovoltaics" Sponsored by Dept. of Education, \$49,954. (June 1, 2019 - August 30, 2019), Supplement through Dept. of Education MSEIP, Villa, Elsa (PI).Hodges, Deidra R (Co-PI), "Hybrid Inorganic-Organic Perovskite Halides Thin-Film Photovoltaics Co-PI," Sponsored by NSF, \$63,307, (May 1, 2018 - August 30, 2018), Supplement through NSF LSAMP, Flores, Benjamin C (PI).
11. Hodges, Deidra R (Co-PI), "Hybrid Inorganic-Organic Perovskite Halides Thin-Film Photovoltaics," Sponsored by NSF, \$52,755. (May 1, 2017 - August 30, 2017), Supplement through NSF LSAMP, Flores, Benjamin C (PI).
12. Hodges, Deidra R (PI), "Investigation of Hybrid Inorganic-Organic Perovskite Halides: Materials Structure and Property Relationships for Photovoltaics," \$5,000. Sponsored by UTEP URI (February 1, 2019 - August 30, 2019).

13. Hodges, Deidra R (Key Personnel), Misra, Devesh (PI), "Acquisition of an Advanced Thermal Analysis and Imaging System for Integration with Interdisciplinary Research and Education in Low Density Organic-Inorganic Materials," Sponsored by ARO, \$494,532. (June 27, 2016 - 2017), Equipment grant.
14. Hodges, Deidra R (Key Personnel), Lopez, Jorge A (PI), "Surface Characterization of Materials," Sponsored by ARO, \$404,514. (June 1, 2016 - Present), Equipment grant.
15. Hodges, Deidra R (Co-PI), "An Integrated Mechanical, Testing and Characterization System for Thin-Engineered Materials Subjected to Ultra-High-Cycled Fatigue," UTEP Research Initiative, \$20,000. (August 30, 2016), Stewart, Calvin (PI).
16. Hodges, Deidra R (Co-PI), "Hybrid Inorganic-Organic Perovskite Halides Thin-Film Photovoltaics," Sponsored by NSF, \$46,268. (May 1, 2016 - August 30, 2016), Supplement through NSF LSAMP, Flores, Benjamin C (PI).
17. Hodges, Deidra R (PI), "Investigation of Hybrid Inorganic-Organic Perovskite Halides: Materials Structure and Property Relationships for Photovoltaics," \$5,000. Sponsored by UTEP URI (November 1, 2015 - August 30, 2016).
18. Hodges, Deidra R (PI), "MRI: Acquisition of a Thin-Film Materials Deposition System," Sponsored by NSF, Federal, \$204,150. (September 1, 2012 - August 31, 2013).
19. Hodges, Deidra R (PI), "CZTS Thin-Films and Solar Cells by Liquid-Based Techniques," Sponsored by NSF, Federal, \$175,000. (August 15, 2011 - July 31, 2013).

#### **Other Research:**

1. Hodges, Deidra R (PI), "Nanoscale Advanced X-ray and Optical Probing, Spectroscopy, Microscopy and the Nanoscience of Hybrid Inorganic-Organic Perovskites Halides for Thin Film Photovoltaics," BNL Center for Functional Nanomaterials (CFN). (May 1, 2019 - 2021).
2. Hodges, Deidra R (PI), "Nanoscale Advanced X-ray and Optical Probing, Spectroscopy, Microscopy and the Nanoscience of Hybrid Inorganic-Organic Perovskites Halides for Thin Film Photovoltaics," BNL Center for Functional Nanomaterials (CFN). (January 1, 2017 - April 30, 2018).
3. Hodges, Deidra R (PI), "Advanced Optical and Spectroscopy and Microscopy Probing and the Nanoscience of Hybrid Inorganic-Organic Perovskites Halides for Thin Film Photovoltaics," BNL Center for Functional Nanomaterials (CFN). (July 1, 2016 - August 30, 2016).
4. Hodges, Deidra R (PI), "Nanoscale Advanced X-ray Probing and Spectroscopy and the Nanoscience of Hybrid Inorganic-Organic Perovskite Halides for Thin Film Photovoltaics," BNL Center for Functional Nanomaterials (CFN). (July 1, 2016 - August 30, 2016).

#### **PROPOSALS SUBMITTED BUT NOT FUNDED**

1. US Department of Energy NNSA MSIPP, Consortium for Sensing and Imaging Sciences and Engineering (ConSISE), \$ 3,000,000
2. U.S. Department of Energy FY2018 Consolidated Innovative Nuclear Research, Synchrotron and Charge Transport Studies of Advanced Materials for Radiation Detectors, \$ 1,000,000
3. U.S. Department of Defense, Solar Blind Ultraviolet Photodetectors for Defense Applications, \$ 600,000

## PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS

- USF Presidential Leadership Award
- Alfred P. SLOAN Fellowship Award
- Florida Education Fund McKnight Doctoral Fellowship Award
- Martin Marietta Manned Space Systems Thomas Jefferson Cup Award
- Martin Marietta Manned Space Systems Independent Research and Development of the Year Award

## OFFICES HELD IN PROFESSIONAL SOCIETIES

- ECEDHA: Vice-President of the ECEDHA Board of Directors, 2026-2027

## OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE

- Facilitator for the Institute for Academic Leadership (IAL), hosted by Florida State University
- DOE EERE Peer Reviewer for the SETO PV Program
- IEEE Senior Member
- EMC Organizing Committee Member and Session Chair
- DOE, NSF, and INL Panelist and Reviewer

## Editorial Boards:

1. **Guest Editor** for *Journal of Electronic Materials*, 2025-
2. **Editor** - Editor of Elsevier's *Materials Science in Semiconducting Processing (MSSP)*. 2020-2023.
3. **Associate Editor** - Editor of Elsevier's *Materials Science in Semiconducting Processing (MSSP)*. 2018-2020

## Professional Activities

1. Selected as one of three visiting scientists, in support Honeywell's DOE NNSA Kansas City National Security Campus. Assigned to Global Security and obtained a Top Secret Security clearance in support of the program, 2021.
2. U.S. Department of Energy Solar Energy Technologies Office SETO FY22-24 Lab Call Core Capabilities – Reviewer, 2021.
3. U.S. Department of Energy NREL LDRD – Reviewer, 2021.
4. U.S. Department of Energy Solar Energy Technologies Office SETO FY22-24 Lab Call Core Capabilities – Reviewer, 2021.
5. NSF EPSCoR Site Visit, Panelist, 2021.
6. NSF DMREF Optoelectronic Materials and Devices, Reviewer, 2021.
7. 63<sup>rd</sup> MRS EMC Session Chairs, 2021.
8. OSA NOMA, Invited talk, 2021.
9. BNL CFN, Invited talk, 2021.
10. Institute Nuclear Materials Management (INMM), three conference proceedings by Hodges and group, 2021. (See Refereed Conference Proceedings section.)



11. NSF ECCS, Panelist, 2020.
12. SPIE, Invited talk, 2020.
13. IEEE PVSC, Poster presentation, 2020.
14. MRS 62<sup>nd</sup> EMC, Poster presentation, 2020.
15. Harvard University – 2019 Minority Faculty Development Workshop, *Engineering a World of Difference: Policy and Practice*, Sept. 18-21, 2019. Invited participant.
16. Dept. of Education, Washington, DC – MSEIP CCEM Capacity Building Grant Conference, Oct. 27-29, 2019.
17. National Renewable Energy Laboratory (NREL) Hands-on Photovoltaic Experience (HOPE) and Faculty Development Workshops, July 2019, July 2016 and June 2014. Invited talk.
18. EXAFS 2018 Short Course: Intro to X-ray Absorption Spectroscopy, BNL, November 6-8, 2019. Selected attendee.
19. BNL Center for Functional Nanomaterials (CFN) Ambassador, (8/1/2018 – present)
20. 2018 NSF EFRI Workshop: Convergence and Interdisciplinarity in Advancing Larger Scale Research, May, 14, 2018. Attendee.
21. Conference Session Chairs for the 5<sup>th</sup> Southwest Energy Science and Engineering Symposium, and the College of Engineering Research Forum. Session Chair.
22. College of Engineering Tau Beta Pi (TBP) FACULTY Advisor; hosted a district conference 5/2017 at UTEP. Chapter recipient of an endowment from the National TBP organization.
23. Whitehouse STEM workshop at Tuskegee, NREL invited participant.
24. Professional development workshops attendee: 1) NREL, 2) Women of Color conference at Stanford University and NSF's MFDW in Washington, DC.
25. BNL National Synchrotron Light Source II Beamline 5-ID Submicron Resolution X-ray Spectroscopy (SRX), user. Performed both XANES and XRF synchrotron radiation analysis of perovskite and cadmium zinc telluride materials for solar cells and radiation detectors. Dept. of Energy Consolidated Nuclear Research Reviewer, NSF Panelist Reviewer, and Journal Referee for Thin Solid Films Journal, SPIE Optical Engineering and Journal of Applied Nanoscience. Reviewer.

### **Teaching:**

#### **Undergraduate Courses Taught:**

1. EE3325 - Applied Quantum Mechanics for EE
2. EE2301 – Circuits I
3. EE2302 – Circuits II
4. EE2401 – Semiconductors
5. EE3501 – Embedded Systems
6. EE3903 – Electronic Materials
7. ENU4004 – Introduction to Nuclear Engineering

## 8. ENU4150 – Instrumentation and Controls for Nuclear Power Plants

### Graduate New Course Development:

#### 1. **EE4395/EE5390 - Semiconductor Material and Device Characterization**

This course presents the fundamental principles of many of the characterization techniques used in the semiconductor industry. Concepts and theory underlying the techniques are reviewed, and selected experimental results are presented.

#### 2. **EE4350/EE5390 - Device Electronics for Integrated Circuits**

The impact of integrated circuits (ICs) and semiconductor devices on engineering and on the broader society continues to grow. ICs contain tens-of-millions of active devices on a chip. The majority of chips are formed of silicon and the majority of devices are metal-oxide-semiconductor (MOS) field-effect transistors (MOSFETS). This course provides an overview of the physical electronics of semiconductors, silicon technology, IC fabrication, *pn* junctions, bipolar transistors, and MOSFETS.

#### 3. **EE4377/EE5381 - Applied Photovoltaics**

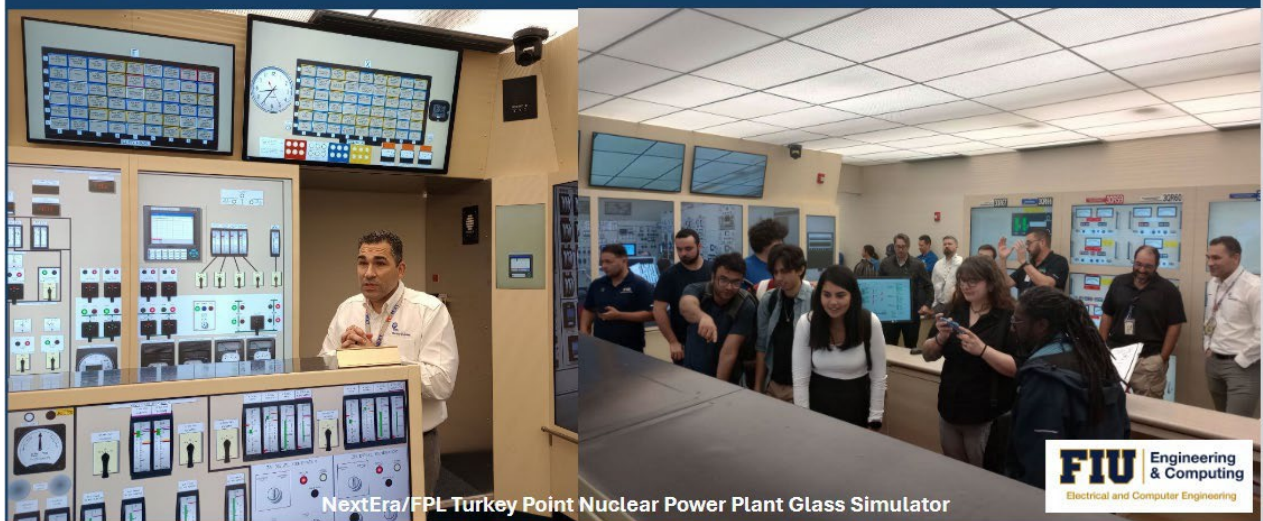
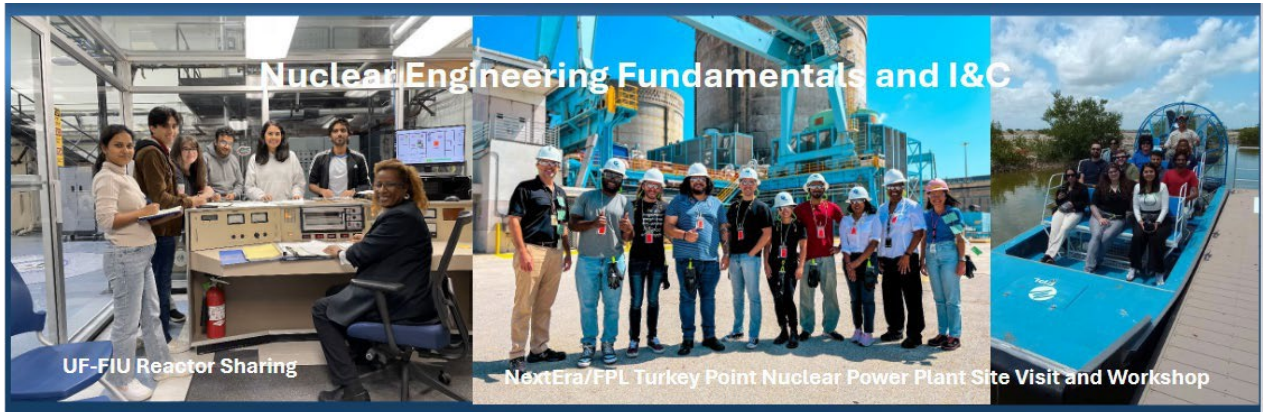
This course presents the fundamental principles of the solar energy conversion process and the most common cell technologies are discussed. A range of semiconductor materials are discussed for their potential use in photovoltaic applications, considering the material properties that affect the device performance, including efficiency, cost and environmental conditions.

#### 4. **EE4395/EE5380 - Renewable Energy and Energy Sustainability**

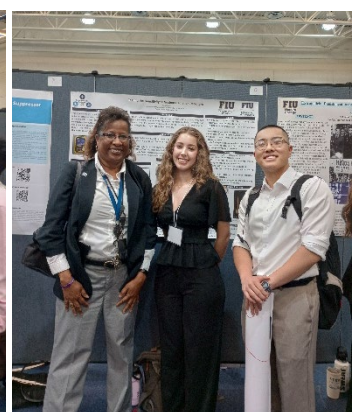
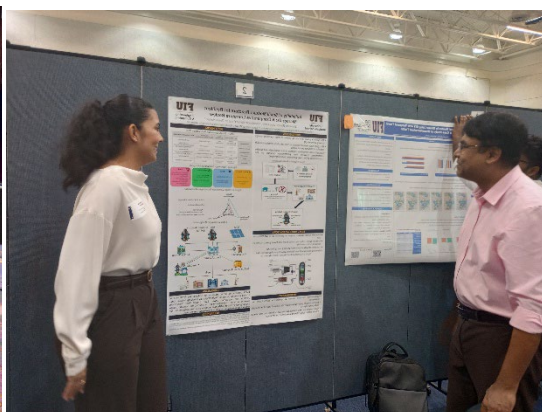
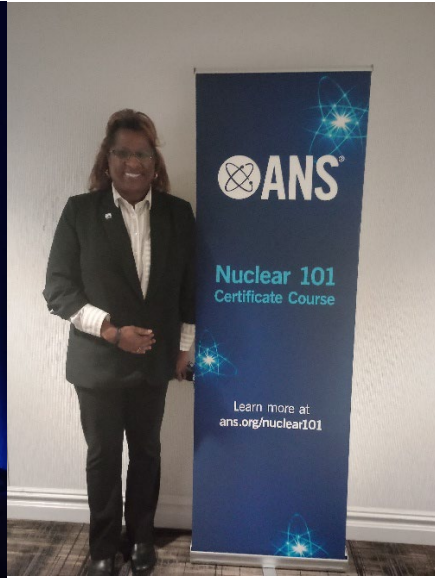
This course provides important knowledge about many aspects of renewable energy sources. This course assesses the current and potential future energy systems, covers resources, extraction, conversion, and end-use, and emphasizes meeting regional and global energy in the 21<sup>st</sup> century in a sustainable manner.

### Professional Memberships:

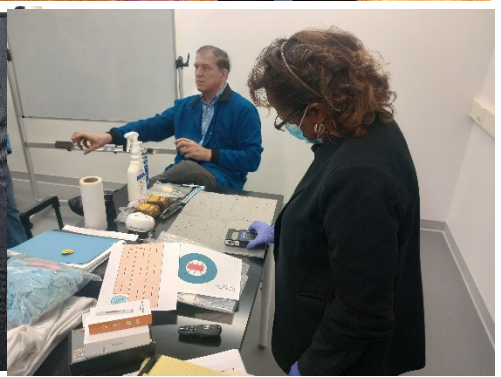
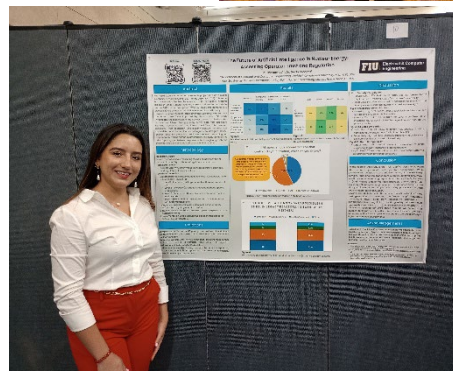
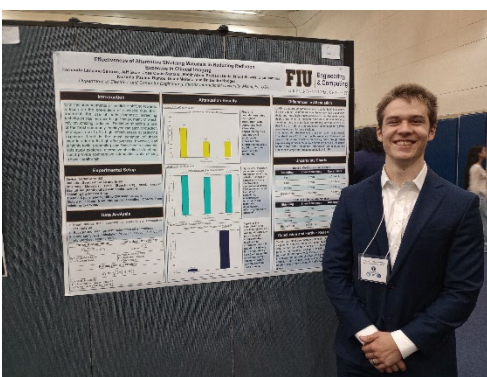
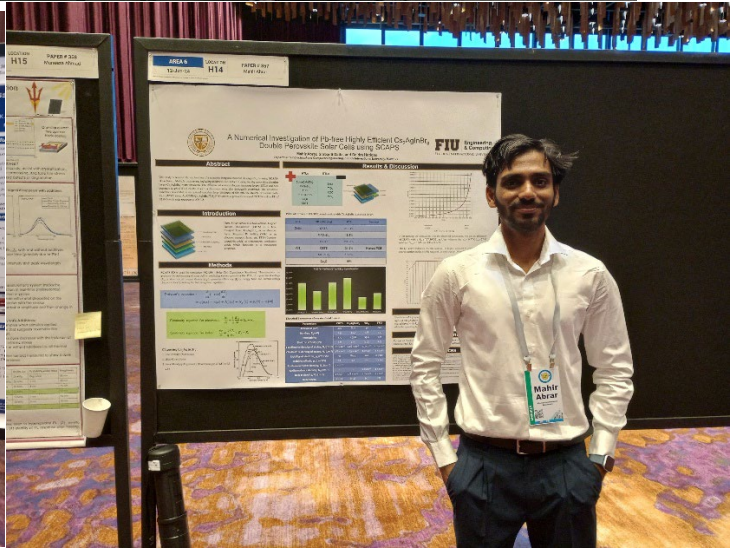
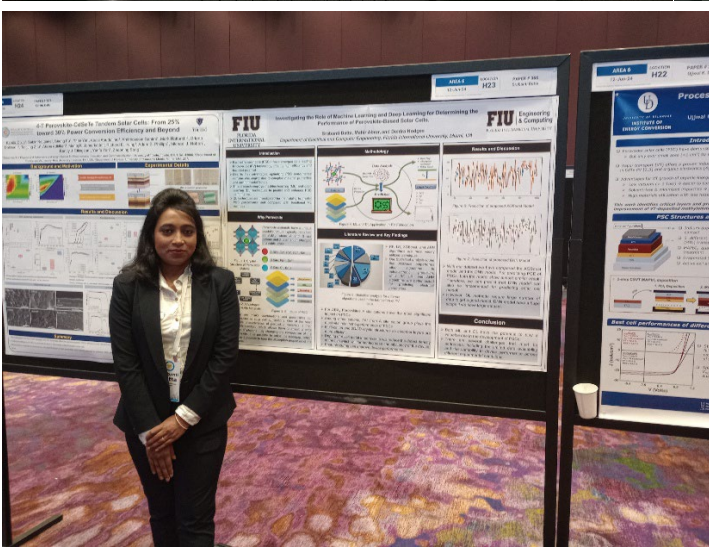
- Institute of Electrical and Electronics Engineers (IEEE)
- American Nuclear Society (ANS)
- Institute of Nuclear Materials Management (INMM)
- Materials Research Society (MRS)
- American Society for Engineering Education (ASEE)















**John Heiser @ NSERC**



Touring the BNL Northeast Energy Research Center (NSERC) with John Heiser.

Also toured the 200 acre Long Island Solar Farm.



**CZT Radiation Detection Laboratory**



**CFN FIB/SEM, TEM and Cleanroom**



**NSLS II Beamline 28-ID XPD Support**









## Media Release and Highlights

Recently invited to be Associate Editor for Elsevier's *Materials Science in Semiconductor Processing*. <https://www.journals.elsevier.com/materials-science-in-semiconductor-processing/editorial-board/assist-prof-deidra-r-hodges-phd>



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## Assist. Prof. Deidra R. Hodges, PhD

Associate Editor, Materials Science in Semiconductor Processing

The University of Texas at El Paso Department of Electrical and Computer Engineering, El Paso, Texas, United States



Link to Editor's websiteDeidra Hodges received B.S. degrees in both Physics and Electrical Engineering from Dillard University and Columbia University, respectively. Hodges subsequently received her M.S. in E.E. degree from Columbia University, and the Ph.D. in E.E. from the University of South Florida. Hodges is currently an assistant professor of electrical and computer engineering at the University of Texas at El Paso. Her primary research focus is in the areas of semiconductor materials, processing, characterization, and devices, including perovskite solar cells and radiation detectors. Hodges' network spans both the National Renewable Energy Laboratory and Brookhaven National Laboratory, including working with scientists and as a user of their facilities.

Interviewed by the Marietta Daily Journal about Solar Energy research, power company rates and my PV rooftop installation. See appendix 5.7 for additional highlights.



**ART FOR THE PARK**

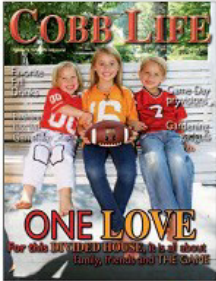
Show with 45 artists will benefit MacFarlane Nature Park on Oct. 17 and 18

LIFESTYLE / 1D

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## Officials reject Core principles during meeting

By Hannah Morgan  
hmorgan@mdjonline.com

**MARIETTA** — Cobb school board member Kathleen Angelucci met this week with cross-county colleagues Mary Kay Bacallao of Fayette County and Kelly Marlow of Cherokee County to discuss the potential ramifications Common Core could have on local schools.

They met at Cherokee Cattle Co. off of Canton Road in east Cobb with about 50 people in attendance. The three school board members described the history, implementation and future of Common Core in their school districts.

The forum was held by a local chapter of the Northwest Georgia 9/12 project. The conservative, nonpartisan group says on its website that it "strives to uphold America's Founding Principles through education, service and political action. We promote states' rights, the Constitution, limited government and the rule of law."

The group strongly opposes the continued implementation of Common Core in Georgia. "Teaching and learning will become the by-products of Common Core," Angelucci said.

Angelucci said she is concerned Common Core standards are "sub-standard, developmentally inappropriate standards" that hold teachers to impossible evaluation standards and over-tests students and teachers alike.

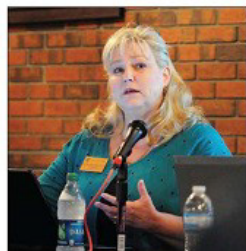
She also said she is worried that the total cost of Common Core reaches far beyond the \$7.5 million math textbooks the Cobb Board of Education voted not to order this school year. Angelucci said teachers were tired of having their curriculums changed every few years.

"Teachers are tired of the rug getting pulled out from under them. I know our teachers are tired, and it's not fair to evaluate them based on these standards," she said.

Marlow called Common Core "the largest unfunded federal mandate in the history of the United States."

Many present at the forum, including all

See Core, Page 6A



Staff/Kelly J. Huff

Above: Dr. Deidra Hodges, assistant professor of electrical engineering at Southern Polytechnic State University, shows off the school solar panel grid that powers the campus greenhouse. Hodges recently installed the same set up at her home in Hiram and actually puts electricity back on the grid at her home. Below: Hodges' home in Hiram recently got a facelift with new solar panels that will decrease her demand for electricity from her power company.

## Company, customers debate raising rates on rays

By Nikki Wiley  
nwiley@mdjonline.com

**MARIETTA** — Going green could carry an extra price tag.

Georgia Power says customers with solar panels on their homes or businesses who don't opt into the company's Advanced Solar Initiative need to start paying an extra fee on their power bill.

The energy monopoly has asked the Georgia Public Service Commission for permission to raise its rates an average of \$8 monthly for residential customers. Coupled with that is a request to

charge an extra \$22 monthly on the typical home solar system.

Customers can apply to become part of the initiative, a solar energy purchase program, but spots are limited. Homes or businesses that rely completely on solar power and disconnect from the utility's grid would be unaffected.

The PSC is expected to vote on the request in mid-December and heard

testimony from the power company this week. If approved, the hike would go into effect in January.

John Kraft, Georgia Power spokesman, says the fee is needed because solar customers buy less power from the utility but still require access to the grid and other infrastructure.

"They don't want to go into the dark so they want us to instantly provide a seamless amount of power,"

Kraft said.

Most solar homes do not generate enough electricity to rely exclusively on the panels. Kraft says usually homes still need to be connected to a utility's system for power at night or on cloudy days when less solar power is produced.

"It means we have to have power on standby to serve that need in case it comes up," Kraft said.

The rate increase for traditional customers would last three years and is the first request since 2010 when the service

See Solar, Page 7A





## **International X-ray Scattering Conference (IXS) 2019, Stony Brook University, NY**

Poster presentations by: Deidra Hodges, Angel De La Rosa and Luis Valeria Frias



## **EXAFS 2018 BNL**

Selected to participate in an "Introduction to X-ray Absorption Spectroscopy" short course. Knowledge and skills gain from this course supported the analysis of the perovskite beamline data from NSLS II.



## List of Registered Participants

Sort By:  Records Displayed:

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First Prev Next Last

| Title | First Name   | Last Name  | Affiliation                             | Registered            |
|-------|--------------|------------|-----------------------------------------|-----------------------|
| Dr.   | Mahdi        | Ahmadi     | Cornell University                      | 10/4/2018 3:19:47 PM  |
|       | Jason        | Baker      | Los Alamos National Laboratory          | 9/10/2018 5:22:46 PM  |
|       | Luis         | Betancourt | Brookhaven National Laboratory          | 9/17/2018 3:19:30 PM  |
| Dr.   | Eric         | Cao        | Duracell                                | 10/12/2018 9:20:17 AM |
| Mrs.  | Amanda       | Carr       | Stony Brook University                  | 10/3/2018 12:12:52 PM |
| Ms.   | Perla        | Cruz-Tato  | University of Puerto Rico - Rio Piedras | 9/28/2018 9:57:53 AM  |
| Mr.   | KAIXI        | DENG       | Stony Brook University                  | 8/28/2018 2:57:52 PM  |
| Dr.   | MICHAEL      | FORDE      | The University of the West Indies       | 9/30/2018 8:37:24 PM  |
| Mr.   | Jiayi        | Fu         | University of Delaware                  | 9/16/2018 9:44:26 PM  |
|       | Elaine       | Gomez      | Columbia University                     | 10/5/2018 5:50:21 PM  |
| Mr.   | Marc Francis | Hidalgo    | NECESS at Binghamton University         | 9/7/2018 1:05:13 PM   |
| Dr.   | Deidra       | Hodges     | University of Texas at El Paso          | 8/27/2018 10:40:49 PM |
|       | Lisa         | Housel     | Stony Brook University                  | 9/27/2018 10:03:18 AM |
| Miss. | Li           | Jiao       | Northeastern university                 | 10/5/2018 10:48:59 PM |

## BNL Visiting Faculty - Summers 2014, 2016, 2017, 2018 and 2019

Perform summer research at BNL working on Radiation Detection with BNL scientist and use BNL facilities (CFN and NSLS II) for Perovskites research. Also, a reviewer for CFN user proposals and a CFN Ambassador. Several students participate each summer through Dr. Flores' NSF LSAMP grant supplements and Dr. Elsa Villa's Dept. of Education MSEIP grant supplement.

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**Deidra Hodges**

**Assistant Professor**

University of Texas at El Paso

Electrical and Computer Engineering

**Contact Information:**  
500 W. University Ave.  
El Paso, vstate 79968  
915-747-7950  
[drhodges@utep.edu](mailto:drhodges@utep.edu)



**For More Information Contact:**

**Noel Blackburn**  
Brookhaven National Laboratory  
Bldg.438 – P.O. Box 5000  
Upton, NY 11973-5000  
631-344-2890 (phone)  
631-344-5832 (fax)  
[blackburn@bnl.gov](mailto:blackburn@bnl.gov)

**Education**

|                             |       |      |                        |
|-----------------------------|-------|------|------------------------|
| University of South Florida | Ph.D. | 2009 | Electrical Engineering |
| Columbia University         | M.S.  | 1984 | Electrical Engineering |
| Columbia University         | B.S.  | 1983 | Electrical Engineering |
| Dillard University          | B.S.  | 1982 | Physics                |

**Positions & Employment**



## USF Highlights – CoE Invited talk, and President Judy Genshaft Leadership Award



2017 Fall Seminar

Location: CUTR 202

Date: Wednesday, November 1, 2017 Time: 2:00 pm

### DEPARTMENT OF ELECTRICAL ENGINEERING & NANOTECHNOLOGY RESEARCH AND EDUCATION CENTER (NREC) PRESENT

Deidra Hodges, Ph.D.

Assistant Professor, Department of Electrical and Computer Engineering  
University of Texas-El Paso, El Paso, TX

Faculty page: <https://academics.utep.edu/Default.aspx?tabid=70104&ID=drhodges>

Lab Website: <http://webhodges.ece.utep.edu/>

### Perovskite Photovoltaics and X-Ray Radiation Detectors Research Highlights

#### Abstract

Renewable energies are one of the most important components of the global new energy strategy. Utilizing the power of the sun is one of the most viable ways to solve the foreseeable world's energy crisis. With increasing attention toward carbon-neutral energy production, solar electricity, or photovoltaic (PV) technology, is the object of steadily growing interest. The International Energy Agency's technology roadmap estimates that by 2050, PV will provide ~ 11% of all global electricity production and avoid 2.3 gigatonnes of CO<sub>2</sub> emissions per year. A new solar cell material has evolved with transformative potential with laboratory efficiencies of 19.7%. Perovskite absorber materials are very inexpensive to synthesize and simple to manufacture, making them an extremely commercially viable option. Solar cell efficiencies of devices using these materials have increased from 3.8% in 2009 to 20.1% in 2015, making this the fastest-advancing solar cell technology to date. These devices are also known for their high photon absorptivity, ideal direct band gaps with superior carrier charge transports, and cost-effective modes of fabrication scalability.

#### Biography

Dr. Deidra Hodges received B.S. degrees in both Physics and Electrical Engineering in a Dual Degree program between Dillard University and Columbia University. Dr. Hodges also received her MSEE from Columbia University. She joined IBM Federal Systems Division in Clear Lake, Texas, working on NASA's Space Shuttle program in Avionics Flight Software.



Hodges later joined Martin Marietta Manned Space Systems doing independent research and development in support of NASA's Unmanned Shuttle C proposal. Dr. Hodges received a Ph.D. in Electrical Engineering from USF. Her dissertation was supported by the U.S. Department of Energy, Florida Education Fund's McKnight Doctoral Fellowship and the Alfred P. Sloan Foundation Minority PhD (MPHD) Program. Dr. Hodges joined the faculty at Southern Polytechnic State University in Marietta, GA and initiated a research program in CZTS photovoltaics, with funding support from NSF. She later joined the faculty at the University of Texas at El Paso (UTEP) and continued developing her research program in emerging materials and photovoltaics. Dr. Hodges has ongoing collaborations with the U.S. DOE's Brookhaven National Laboratory,

Imperial College, USF, and the NSF Louis Stokes Alliance for Minority Participation (LSAMP) program.

*Co-sponsored by the NSF Florida-Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP) Bridge to the Doctorate award HRD #1612347 and the Alfred P. Sloan Foundation University Center of Exemplary Mentoring (UCEM) award G-2017-9717*

**Deidra Rangel Hodges** is a PhD candidate in Electrical Engineering at USF, dedicated to reaching girls and recruiting young women to enter the fields of Science and Engineering. Deidra was central to the organization and outreach of the College of Engineering's Annual Engineering Expo in 2007, including the recruitment and involvement of Girl Scout Troop 387 from Winter Haven in creating their own mini "solar systems" and solar cells in hands-on demonstrations. Deidra developed and facilitated the promotional materials and activities at "Introduce a Girl to Engineering" Day held at the Florida State Fairgrounds. Deidra is an exemplary leader, mentor, and role model, involving USF students in alternative energy research, offering encouragement and support to her peers, and inspiring those all around her.



(from left) Dr. Bernard Batson, Deidre Hodges, and President Judy Genshaft