Dr. Debashis Chanda

E-mail: **debashis.chanda@ucf.edu**

EDUCATION

2009-12 **University of Illinois at Urbana-Champaign, USA**
Post-doctoral fellow, Beckman Institute, Material Research Laboratory.

2004-08 **University of Toronto, Canada.**
PhD from Photonics Group, Electrical and Computer Engineering dept.
Distinctions: GPA of 4.0/4.0.

2002-04 **University of Calgary, Canada.**
MS from Electrical and Computer Engineering Dept.
Distinctions: GPA of 3.9/4.0.

1994-98 **Jadavpur University, India.**
BE from Electrical Engineering dept.
Distinctions: GPA of 3.8/4.0. First class honors with distinction.

ACADEMIC/INDUSTRIAL RESEARCH EXPERIENCE

2021- **Professor,** Dept. of Physics, NanoScience Technology Center, CREOL

2017-21 **Associate Professor,** Dept. of Physics, NanoScience Technology Center, CREOL

2012-17 **Assistant Professor**, NanoScience Technology Center, Dept. of Physics, College of Optics and Photonics (CREOL), University of Central Florida

2009-12 Post-Doctoral Research Associate, Beckman Institute, Material Research Laboratory, University of Illinois at Urbana-Champaign, USA
Specialization: Light-Matter interactions in nanoscale, Design and fabrication of high efficiency thin film solar-cells, Plasmonic Sensors, Design and fabrication of 3D Metamaterial Structures, Nanoimprint/Soft lithography
Advisor: **Professor John A. Rogers, Fellow NAS and NAE**

2004-08 Graduate Researcher, Photonics Group, **University of Toronto, Canada.**
Doctoral dissertation: ***Laser Fabrication of 3-Dimensional Nanostructures***
Specialization: Optoelectronics/Photonics, Laser nano-fabrication 3D nanostructures, three-dimensional optofluidic sensors.
Advisor: **Professor Peter R. Herman, Fellow OSA, Fellow SPIE**

2002-04 Graduate Researcher, **University of Calgary, Canada.**
MS thesis: ***Wireless Signal Transmission over Optical Fiber***
Specialization: Radio-over-fiber
Advisor: **Professor Abu Sesay**

2000-02 **Sr. Research Engineer, Philips Semiconductors, Philips Ltd., Bangalore.**
Specialization: Semiconductor devices for speech signal processing

1998-00 **Research Engineer, ABB R&D, ABB Ltd., Bangalore.**
Specialization: Semiconductor power electronic devices and signal processing

Major Scientific Breakthroughs:

- **World's 1st Ultralight Plasmonic Structural Color Paint – World's 1st Man-Made Butterflies**
- **World's 1st Skin-like Display Development**
- **World's 1st "Color" Infrared Detector/Camera Development based on Mono-Layer Graphene**
- **World's 1st Frequency Modulation based Photon Detection**
- **World's 1st Molecular Chirality Detection Sensor Development based on Achiral Substrates**
- **World's 1st Neurotransmitter Detection from Blood – "Blood Tests for Brain Monitoring"**

Awarded Grants

Research Support: Dr. Debashis Chanda

e-Skin Displays Inc., CA. Seed Grant, Debashis Chanda (**Single PI**)
Title: Novel Functional Nanomaterials for Energy Saving and Sensing
Duration: 05/01/2025 – 05/31/2026
Amount: **$120,000 (**Role: PI)

Army Nightvision SBIR Phase-I, Debashis Chanda (**PI**) with E-Skin Displays Inc. (a Dr. Chanda Startup), Title: Lightweight Longwave Bolometer Sensor Components
Duration: 11/01/2024 – 04/30/2025
Amount: **$250k (**Role: PI, 30% goes to UCF and 70% goes to Chanda Startup E-Skin Displays Inc.)

NSF MIST Center Grant (Sponsored by e-Skin Displays Inc., CA), Debashis Chanda (**Single PI**)
Title: Novel Functional Nanomaterials for Energy Saving and Sensing
Duration: 09/01/2024 – 08/31/2025
Amount: **$100,000 (**Role: PI)

Samsung Electronics, Debashis Chanda (**Single PI**)
Title: Bio-Inspired Infrared Detection
Duration: 03/01/2023 – 02/28/2024
Amount: **$150,000 (**Role: PI)

Sony Corporation, Debashis Chanda (**Single PI**)
Title: Graphene based LWIR Camera Development
Duration: 09/01/2023 – 08/31/2024
Amount: **$100,000/year (**Role: PI)

DARPA SBIR DIRECT Phase-II, Debashis Chanda (**PI**) with E-Skin Displays Inc. (a Dr. Chanda Startup), Title: Graphene based Dynamically Tunable LWIR Detection and Imaging at Room Temperature
Duration: 10/01/2021 – 09/30/2024
Amount: **$1.5M (**Role: PI, 50% goes to UCF and 50% goes to Chanda Startup E-Skin Displays Inc.)
ARO/NSF MIST Center Grant, Debashis Chanda (**PI**), Title: Room-T ultrafast LWIR detectors using patterned graphene absorbers on MCT
Duration: 09/01/2021 – 08/31/2024
Amount: **$150, 000 (**Role: **PI**, co-PI: Prof. Avik Ghosh from UVA**)**

DARPA Phase-I, Debashis Chanda (**PI**) with Sivananthan Labs, Chicago, Title:2D Material based Thermal Emission Control
Duration: 04/01/2021 – 10/30/2021
Amount: **$15, 000 (**Role: PI)

UCF Office of Research Seed Grant, Debashis Chanda (**Single PI**), Title: Genetically Modified Optical Sensors for Low Cost, High Throughput Detection and Screening for COVID-19
Duration: 09/01/2020 – 08/31/2021
Amount: **$40, 000 (**Role: **PI with 80% credit, No Overhead,** co-PI: Mubarak Shah**)**

National Science Foundation (NSF) ECCS/EPMD - 2015722
Debashis Chanda (**Single PI**), Title: *Nonlinear Semiconductor-Metal Phase Transition Induced Frequency Modulation (FM) based Mid-Infrared Detection at Room Temperature*
Duration: **05/01/2020- 04/30/2023**
Amount: **$350, 000** (Role: **PI with 100% share**)

NGA/DoD
Debashis Chanda (**Single PI**), Title: *Adaptive Infrared Thermal Signature Management.*
Duration: **04/01/2020 - 03/31/2025**
Amount: **$2, 500, 000** (Role: **PI with 100% share**)

DARPA – WIRED Program GRANT NO. HR0011-16-1-0003 – PHASE III
Debashis Chanda (**PI**), Title: *Ultrafast, Uncooled Long Wave Infrared Detection based on Mono-layer Graphene.*
Duration: **01/01/2018- 12/31/2019**
Amount: **$339, 082** (Role: **PI with about 80% share**, co-PI: Michael Leuenberger)

National Science Foundation (NSF) ECCS/EPMD-1920840,
Debashis Chanda (**Single PI**), Title: *Self-Assembled Angle Independent Plasmonic Displays*,
Duration: **07/01/2019-06/30/2022**
Amount: **$399,221 (**Role: **PI with 100% Credit)**

UCF Office of Research Seed Grant, Debashis Chanda (**Single PI**), Title: A Possible Way of Making World's First "Color" IR Camera
Duration: **01/01/2020- 12/31/2020**
Amount: **$60, 000 (**Role: **PI with 100% credit, No Overhead)**

Florida Space Grant/NASA, Debashis Chanda (**Single PI**), Title: Infrared "Color" Imaging for Deep Space Imaging, Duration: **09/01/2019- 08/31/2020**
Amount: **$25, 000 (**Role: **PI with 100% credit, No Overhead)**

Hinkley Foundation, Debashis Chanda (**PI**), Title: Detection and Separation of Recyclable Plastics from Municipal Solid Waste
Duration: **09/01/2019- 08/31/2020**
Amount: **$50, 000 (**Role: **PI with 100% credit)**

National Science Foundation (NSF) (ECCS/EPMD – 1808045), Debashis Chanda (**Single PI**), Title: *Superchiral Light Generation on Achiral Substrates for High Sensitive Detection of Chiral Molecules*, Duration: **08/01/2018- 07/31/2021**
Amount: **$359, 869 (**Role: **PI with 100% Credit)**

Northrop Grumman Corporation NG-63018088/63018125, Debashis Chanda (**Single PI**), Title: *Large Area Mid-IR Detectors and focal plane arrays*
Duration: **11/01/2017 – Continuous Support**
Amount: **$75, 000/ Year** (Role: **PI with 100% credit, No Overhead Continuous Support)**

Hinkley Foundation, Debashis Chanda (**PI**), Title: *Detection and Separation of Recyclable Plastics from Municipal Solid Waste*
Duration: **09/01/2018- 08/31/2019**
Amount: **$46, 000 (**Role: **PI with 100% credit)**

DARPA – WIRED Program GRANT NO. HR0011-16-1-0003 - PHASE II
Debashis Chanda (**PI**), Title: *Ultrafast, Uncooled Long Wave Infrared Detection based on Mono-layer Graphene*
Duration: **01/01/2017- 12/31/2018**
Amount: **$482, 478** (Role: **PI with about 80% share**, co-PI: Michael Leuenberger)

ARO DURIP
Debashis Chanda (**co-PI**) 08/2018
III-V Reactive Ion Etcher.
Amount: **$375, 000** (Role: co-**PI 0% credit, Instrument grant)**

DARPA – WIRED Program GRANT NO. HR0011-16-1-0003 - PHASE I
Debashis Chanda (**PI**), Title: *Ultrafast, Uncooled Long Wave Infrared Detection based on Mono-layer Graphene*
Duration: **06/01/2016 - 12/31/2017**
Amount: **$550, 128** (Role: **PI with about 80% share**, co-PI: Michael Leuenberger)

National Science Foundation (NSF) ECCS/EPMD-1509729**,** Debashis Chanda (**Single PI**), Title: *Flexible Reflective Metasurface Displays*
Duration: **07/01/2015 - 06/30/2019**
Amount: **$300, 012** (Role: **PI with 100% credit**)

National Science Foundation (NSF) CMMI-1450806, Debashis Chanda (**Single PI**), Title: *Unified Photon and Electron Harvesting Scheme for High Efficiency Thin-film Mono-crystalline Silicon Solar Cells*
Duration: **09/01/2014- 04/30/2018**
Amount: **$199,942** (Role: **PI with 100% credit**)

Florida Space Grant/NASA FSI63016092**,** Debashis Chanda (**Single PI**), Title: *Multi Spectral Uncooled Low SWaP Printed Infrared Detectors for Spectroscopic Chemical Analysis during Long Space Missions*
Duration: **01/01/2017 – 12/31/2017**
Amount: **$25,000** (Role: **PI with 100% credit**)

Northrop Grumman NG-63018073 , Debashis Chanda (**Single PI**), Title: *Large Area Mid-IR Detectors and focal plane arrays,* Duration: **3/01/2016 - 10/31/2016**
Amount: **$50, 000** (Role: **PI with 100% credit**)

UCF Major Equipment Grant, Debashis Chanda (**PI**), Title: *Hybrid Magnetron Sputtering, E-beam and Thermal- all in one deposition system.*
Duration: **03/15/2016**
Amount: **$325,000** (Role: **PI with 100% credit**)

Florida Space Institute/NASA FSI63019022, Debashis Chanda (**Single PI**), Title: *Printed Metamaterial based Mid-IR Imaging for Deep Space Exploration*
Duration: **07/15/2013-08/31/2015**
Amount: **$75, 000** (Role: **PI with 100% credit**)

Open Photonics Inc. 63018043, Debashis Chanda (**Single PI**), Title: *Printed Metamaterial based Large Area Mid-IR Detectors and focal plane arrays*
Duration: **6/01/2014 - 08/31/2015**
Amount: **$20, 000** (with FHTCC 1:1 match) (Role: **PI with 100% credit**)

Lockheed Martin Corporation, Debashis Chanda (sub-contracted), Title: *Direct Laser Writing of Optical Nanostructures on Chalcogenide Glasses*
Duration: **6/01/2014 - 12/31/2014**
Amount: **$10, 000 (**Role: sub-contractor)

UCF Seed Funding UCF63019026**,** Debashis Chanda (**Single PI**), Title: *Printed Cavity-Coupled Nanoplasmonic Crystals for Non-Invasive In Vivo Diagnosis*
Duration: **03/01/2014-08/31/2015**
Amount: **$7,500** (Role: **PI with 100% credit**)

UCF Major Research Equipment Grant 63019017, Debashis Chanda (**Single PI**), Title: *High Throughput, Large Area, State of the Art Ultrafast Laser Lithography System for Nanomanufacturing of 3D Nanoparticles*
Duration: **2/14/2013 - 03/31/2014**
Amount: **$225, 000** (with center match, Role: **PI with 100% credit**))

SELECTED AWARDS/ACHIEVEMENTS

Dr. Chanda:

International Awards:

2023 **Sony Research Excellence Award** 2022-23.

2023 **Samsung Global Research Outreach (GRO) Award** 2022-23.

2017 Dr. Chanda is awarded **2017 International EIPBN Conference MicroGraph 3-Beamers Choice Award**, June 1, 2017.

2016 Dr. Chanda is Awarded Winner of **'International Displaying Futures Award 2016'** by **MERCK, Germany** for the 'Skin-like Plasmonic Full-Color Displays'.
[**This is an invitation only international competition for novel display innovation. The award came with a plaque, $50,000 fund and long-term research support from MERCK, Germany]
*Recognized by the UCF President and Board of Directors.

National Awards:

2025 **DARPA** Recognized Dr. Chanda and his startup, e-skin Displays Inc., for Innovation.

2024 **Cleantech Faculty Innovation Award** 2024 by University of North Carolina-Chappel Hill and Department of Energy (DOE).

2017 Dr. Chanda received the **Northrop Grumman National Innovation Award** 2016-17.

2013 Received NSF Summer Institute Fellowship, April 2013.

2012 **Department of Energy** (DOE) Energy Frontier Research Center (EFRC) Solar Energy Future Direction Innovation Proposal Award.

UCF Awards:
2025 UCF **Research Incentive Award (RIA)** for research excellence, 2025-2026.
2020 UCF **Luminary Award** for research excellence, 2020.
2018 UCF **Reach for the Stars Award** for research excellence, 2018.
2017 UCF **Research Incentive Award (RIA)** for research excellence, 2016-2017.

Other Awards:
2010-11 Natural Science and Engineering Council (NSERC) of Canada post-doctoral award ($80,000).
2008-09 Government of Ontario Graduate Scholarship ($15000/Year for 2 years), Canada.
2007 Conference on Laser Ablation Award (€2000).
2007 Ontario Science and Technology Award ($15,000/Year), Canada.
2007 Ontario Centre of Excellence (OCE) Award ($2000), Canada.

2004-06 Edward S. Rogers Sr. Scholarship ($12,000/Year for 2 years), Canada.
2004 Graduate Student Conference Travel Award ($1000), University of Calgary.
2002-04 Graduate Scholarship University of Calgary ($12,000/Year for 2 years), Canada.

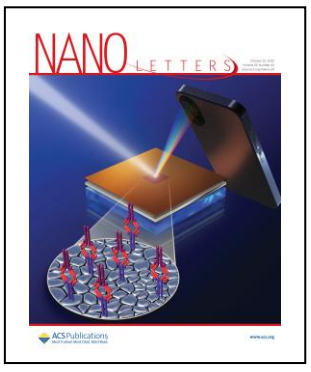
Group Awards:

2025: Mahdi Soudi, a PhD student in Dr. Chanda's group received SPIE **Young Investigator Award** at SPIE Photonics West Conference, San Francisco, CA.
2024: Tianyi Guo, PhD student from Dr. Chanda's group, received **Springer Nature PhD Thesis Award**, 2024.
2024: Nishtha Tikalal, an undergraduate student in Dr. Chanda's group received **UCF RAMP Scholarship**.
2022: Austin Eason, an undergraduate student in Dr. Chanda's group received UCF Order of Pegasus Award - **Order of Pegasus** is UCF's most prestigious student honor.
2021: Antonio Martinez Margolles, PhD student from Dr. Chanda's group received **College of Sciences Dean's Fellowship.**
2021: Sean McCormack undergraduate student in Dr. Chanda's group received UCF EXCEL/COMPASS Scholarship
2020: Alireza Safaei, PhD student from Dr. Chanda's group received **University Best PhD Dissertation Award**
2020: Alireza Safaei, PhD student from Dr. Chanda's group received College of Sciences **Best PhD Dissertation Award**
2019: Alireza Safaei, PhD student from Dr. Chanda's group received **Physics "Student of the Year" Award** for research excellence
2018: Daniel Franklin, PhD students in Dr. Chanda's group received **UCF Order of Pegasus Award 2018.**
* UCF's highest honor awarded to students with only three graduate recipients university-wide per year out of 66k total student enrollment.
2018: Harshil Lalwani, High School Student in Dr. Chanda's group won 2nd place in **Seminole County Science Fair**, Oviedo High School.
2017: Abraham Vazquez-Guardado, PhD students in Dr. Chanda's group received **UCF Dean's Fellowship**
2017: Beatriz Jimenez from Dr. Chanda's group received **SURF Research Scholarship from University of Florida (UF)** (which covers $5000 stipend, on-campus housing and meal plan, airfare, priority consideration for PhD admission)
2016: Daniel Franklin, PhD students in Dr. Chanda's group received **College of Sciences General Scholarship**
2016: Jonathan LEE, PhD students in Dr. Chanda's group received **Dean's Fellowship Award (2013-2018)**
2016: Russell Frank from Dr. Chanda's group received **First Prize in Showcase of Undergraduate Research Excellence**
2016: Samuel Nunez, Jared Cozart and Beatriz Jimenez from Dr. Chanda's group received **Duke Energy Scholarship**
2015: Wade Wilson, undergraduate student in Dr. Chanda's group received the prestigious **AFRL / DoD Science, Mathematics, And Research for Transformation (SMART) Defense Education Program** Scholarship ($38k / year for 5 years)
2015: Daniel Franklin and Javaneh Borouman, PhD students in Dr. Chanda's group received **UCF Graduate Research Forum Poster Awards**

2015: Jonathan LEE, PhD students in Dr. Chanda's group received **UCF Teaching Excellence Award**
2015: Beatriz Jimenez, Samuel Nunez, Jared Cozart undergraduate students in Dr. Chanda's group received UCF EXCEL Scholarship
2015: Harshil Lalwani, Middle School Student in Dr. Chanda's group won the **Crooms Technology Award**, Indian Trail Middle School.
2014: Alireza Safaei, PhD student in Dr. Chanda's group received **Northrop Grumman** Scholarship ($10k)
2014: Daniel Franklin, PhD student in Dr. Chanda's group received **Northrop Grumman** Scholarship ($3k)
2014: Alysia Waugh, Jones High school student in Dr. Chanda's group received Florida Alliance Health FAHPD-HERI Scholarship
2014: Harry Ahlheim undergraduate student in Dr. Chanda's group received Duke Energy EXCEL Scholarship
2013: Wade Wilson and Dr. Chanda received Burnett Research Scholars Grant for the work on Plasmonic Bio-Sensors
2012: Abraham Vazquez-Guardado received National Council of Science and Technology CONACyT scholarship from Government of Mexico ($12k + tuition for 4 years)

SELECTED PUBLICATIONS

[73] Manobina Karmakar, Ayon Jyoti Karmakar, Prasanta Kumar Datta, and **Debashis Chanda**, "Dirac Plasmon Propagation on Patterned Graphene", (Manuscript in Preparation), 2025.
[72] Manobina Karmakar, Ayon Jyoti Karmakar, Mahdi Soudi, Aritra Biswas, Tianyi Guo, Pablo Cencillo-Abad, Prasanta Kumar Datta, and **Debashis Chanda**, "Near-Field and Ultrafast Probing of Gap Plasmon Hybridization for Structural Coloration", (Manuscript in Preparation), 2025.
[71] Aritra Biswas, Mahdi Soudi, Souptik Mukherjee, Pablo Cencillo-Abad, Jay Patel, and **Debashis Chanda**, "Dynamic Control of Phase for Tunable Structural Colors", **Proceedings of the National Academy of Sciences (PNAS)**, **(Accepted, In-Press),** 2025.
[70] M. Soudi, Á. D. Torres-Palencia, C. Beech, P. Cencillo-Abad, F. Mehta, A. Eason, A. Chitrakar, I. Chanda, P. Mastranzo-Ortega, J. Sanchez-Mondragón, A. Vázquez-Guardado, **Debashis Chanda**, "Self-Assembled Plasmonic Biosensor for Smartphone-based Colorimetric Immune Response Measurement", **(Cover Article) Nano Letters**, vol. 25, pp. 15288−15296**,** 2025.



[69] **Debashis Chanda** et.al., "Nanofabrication for Nanophotonics", **ACS Nano**, 19, 13, 12491-12605**,** 2025.
[68] Tianyi Guo, Sayan Chandra, Arindam Dasgupta, Muhammad Waqas Shabbir, **Debashis Chanda,** "Spectrally Tunable Ultrafast Long Wave Infrared Detection at Room Temperature", **Nano Letters**, DOI: https://doi.org/10.1021/acs.nanolett.4c03832, 2024.

- **Phys.org:** "Nanopatterned graphene enables infrared 'color' detection and imaging", Dec 12, 2024.

[67] Biswas, Aritra; Cencillo-Abad, Pablo; **Debashis Chanda,** "Multispectral Molecular Chiral Barcoding", **Advanced Materials,** 10, 2409565, 2024.

- **Phys.org:** "Unique 'barcodes' for molecules could help expedite medical advancements", Oct 15, 2024.

[66] Biswas, Aritra; Cencillo-Abad, Pablo; **Debashis Chanda,** "Nanoplasmonic Aptasensor for Sensitive, Selective and Real-Time Detection of Dopamine from Unprocessed Whole Blood", **Science Advances**, 10, eadp7460, 2024.

- **National Science Foundation** Video Interview: How to Detect Dopamine in the Brain - YouTube

[65] Soudi, Mahdi; Cencillo-Abad, Pablo; Patel, Jay; Ghimire, Suvash; Dillon, Joseph; Biswas, Aritra; Mukhopadhyay, Kausik; **Debashis Chanda,** "Self-Assembled Nanoplasmonic Colorimetric Sensor for Smartphone based Point-of-Care Ammonia Detection in Water", **ACS Applied Materials & Interfaces**, DOI: https://doi.org/10.1021/acsami.4c06615, 2024.

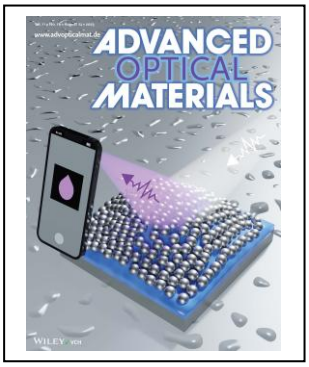
[64] Aritra Biswas, Pablo Cencillo-Abad, Muhammad W. Shabbir, Manobina Karmakar, **Debashis Chanda,** "Tunable Plasmonic Superchiral Light for Ultrasensitive Detection of Chiral Molecules", **Science Advances**,10, eadk2560, 2024.

[63] **Debashis Chanda** et.al., "Roadmap for Optical Metasurfaces", **ACS Photonics**, DOI: https://doi.org/10.1021/acsphotonics.3c00457, 2024.

[62] Tianyi Guo, Arindam Dasgupta, Sayan Chandra, Swastik Ballav, Pablo Cencillo-Abad, Souptik Mukherjee, Aritra Biswas, Muhammad Waqas Shabbir, and **Debashis Chanda*,** "Frequency Modulation Based Long-Wave Infrared Detection and Imaging at Room Temperature", **Advanced Functional Materials,** 2309298, 2023.

- **Phys.org: "**Researcher discovers new technique for photon detection", Dec 12, 2023.

[61] Alberto Moscatelli**,** "Plasmonic structural colour paint gets commercial attention", **Nature Nanotechnology,** https://doi.org/10.1038/s41565-023-01469-1, 2023.



[60] Pablo Cencillo-Abad, Sean McCormack, Tianyi Guo, Aritra Biswas, and **Debashis Chanda,** "Angle and Polarization-Independent Structural Color Based on Controlled Phase and Gain Margins in Ultrathin Transparent Dielectrics", **ACS Photonics,** https://doi.org/10.1021/acsphotonics.3c00632, 2023.

[59] Pablo Cencillo-Abad, Pamela Mastranzo-Ortega, Divambal Appavoo, Tianyi Guo, Lei Zhai, Javier Sanchez-Mondragon and **Debashis Chanda,** "Reusable Structural Colored Nanostructure for Self-Powered Temperature and Humidity Sensing", **Advanced Optical Materials** , 2300300, 2023.

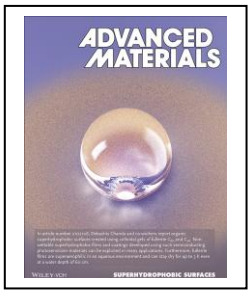
[58] Pablo Cencillo-Abad, Daniel Franklin,Pamela Mastranzo-Ortega, J. Sanchez-Mondragon and **Debashis Chanda,** "Ultralight Plasmonic Structural Color Paint", (**Feature Article**) **Science Advances**, vol. 9,issue 10, DOI: 10.1126/sciadv.adf7207, 2023.

- **National Science Foundation: Researchers create world's first energy-saving paint — inspired by butterflies**, April 17, 2023.
- **Forbes: Butterflies Inspire Paint Without Pigments**, March 21, 2023.
- **WIRED: This Is the Lightest Paint in the World**, March 22, 2023.
- **Phys.org: Researchers create world's first energy-saving paint—inspired by butterflies**, March 8, 2023.
- **World Economic Forum: Energy Saving, Non-Toxic Plasmonic Structural Color Paint**, 2023-2024.

- **Samples are kept at *Harvard Art Museum* as part of Forbes Pigment collection for eternity.**

[57] Manobina Karmakar, Partha Kumbhakar, Tara Singha, Chandra Sekhar Tiwary, **Debashis Chanda***, and Prasanta Kumar Datta*, "Anomalous Indirect Carrier Relaxation in Direct Bandgap Atomically Thin Gallium Telluride", **Physical Review B**, vol. 107, 075429, 2023. *Corresponding Author.

[56] Vázquez-Guardado, Abraham, Mehta, Freya, Jimenez, Beatriz, Biswas, Aritra, Ray, Keval, Baksh, Aliyah, Lee, Sang, Saraf, Nileshi,Seal, Sudipta and **Debashis Chanda,** "Genetically Modified Plasmonic Sensor for Direct Detection of Virus Biomarkers from the Blood", **Nano Letters**, doi.org/10.1021/acs.nanolett.1c01609, 2021.

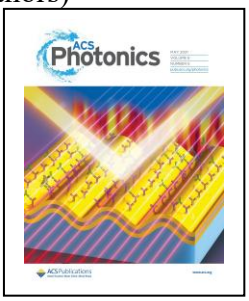


[55] Joong Hoon Lee, Yeong Jae Kim, Young Jin Yoo, Sehui Chang, Gil Ju Lee, Joo Hwan Ko, Kyung Muk Kang, **Debashis Chanda**, and Young Min Song, "Colored, Covert Infrared Display through Hybrid Planar- Plasmonic Cavities", **Advanced Optical Materials**, 2100429, 2021.

[54] Rinku Saran, David Fox,Lei Zhai and **Debashis Chanda,** "Organic Non-wettable Fullerite Films", (**Cover Article**) **Advanced Materials**, article. 2102108, 2021.

[53] Sayan Chandra, Jared Cozart, Sang Lee and **Debashis Chanda**, "Magnetoplasmons for Ultra-Sensitive Label-Free Bio-Sensing", **ACS Photonics**, vol.8, pp.1316−1323, 2021.

[52] Manobina Karmakar, Sayantan Bhattacharya, Subhrajit Mukherjee, Barun Ghosh, Rup Kumar Chowdhury, Amit Agarwal, Samit Kumar Ray, **Debashis Chanda***, Prasanta Kumar Datta*, "Observation of Dynamic Screening in the Excited Exciton States in Multi-Layered MoS_2", **Physical Review B**, vol. 103, pp. 075437, 2021. (*Corresponding Authors)



[51] H. Zhang, H. Zhao, X. Zhao, C. Xu, D. Franklin, A. Vázquez-Guardado, W. Bai, J. Zhao, K. Li, G. Monti, W. Lu, A. Kobeissi, L. Tian, X. Ning, X. Yu, S. Mehta, D. Chanda, Y. Huang, S. Xu, B. E. Perez White, J. A. Rogers, "Biocompatible Light Guide-Assisted Wearable Devices for Enhanced UV Light Delivery in Deep Skin", **Advanced Functional Materials**, https://doi.org/10.1002/adfm.202100576, March 2021.

[50] Daniel Franklin, Ziqian He, Pamela Mastranzo Ortega, Alireza Safaei, Shin-Tson Wu and **Debashis Chanda**, "Self-Assembled Plasmonics for Angle-Independent Structural Color Displays with Actively Addressed Black States", ***Proceedings of the National Academy of Sciences*** **(PNAS)**, doi/10.1073/pnas.2001435117, 2020.

- **National Science Foundation (NSF):** Butterfly-inspired nanotech makes natural-looking pictures on digital screens, June 10, 2020.
- **Phys.org:** Butterfly-inspired nanotech makes natural-looking pictures on digital screens, June 4, 2020.

[49] Alireza Safaei, Sayan Chandra, Muhammad Waqas Shabbir, Michael N. Leuenberger, and **Debashis Chanda**, "Dynamically Tunable Graphene based Uncooled Long Wave Infrared Detection and Imaging", **Nature Communications**, DOI:10:3498, 2019.

- **Nature**: Dirac plasmon-assisted asymmetric hot carrier generation for room-temperature infrared detection
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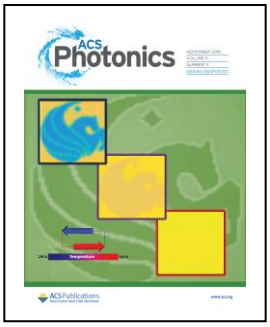

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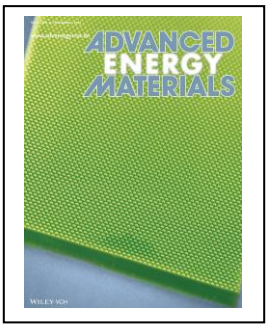

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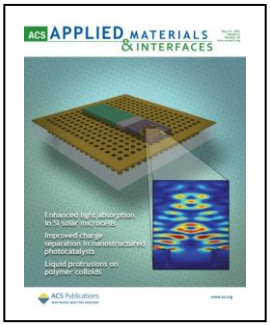

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- **D. Chanda**, A. Vazquez-Guardado, Method for Detecting Virus using ssDNA Functionalized Sensor, US Patent Application.: 17/661,141, Filed: April 28, 2022.
- **D. Chanda**, Sayan Chandra, Tianyi Guo, Frequency Modulation based IR Sensing, Imaging and Related Methods, US Patent Application.: 63/370,263, Filed: Aug 3, 2022.
- **D. Chanda**, Arindam Dasgupta, Samsung Electronics, Doped Phase-Change Material based IR Sensing, Imaging and Related Methods, US Patent Application.: 63/xx, Filed: Sept 3, 2024.
  - Joint Patent with Samsung Electronics
- **D. Chanda**, Tianyi Guo, Dynamically Tunable Multispectral Long Wave Infrared Detection based on Cavity-Coupled Patterned Graphene, US Patent Application: Serial No.63/675,777, July 26, 2024.
- **D. Chanda**, Aritra Biswas, Multispectral plasmonic sensor array for chiral molecule detection, US Patent Application.: Serial No.63/726,709, December 2, 2024.
- **D. Chanda**, Aritra Biswas, Direct detection of neurotransmitter dopamine using aptamer-functionalized plasmonic biosensor, US Patent Application (submitted), September 15, 2024.
- **D. Chanda**, Pablo Cencillo, Ishani Chanda, Development of an Optical Wear Prototype Using LiDAR Technology Targeted as a Course-Specific Navigational Aid for the Visually Impaired, US Patent Application (submitted), November 04, 2024.
- **D. Chanda**, Mahdi Soudi, Vázquez-Guardado, Abraham, Pablo Cencillo, Smartphone-Based Plasmonic Colorimetric Sensor for Rapid Point-of-Care Detection of Bio-Markers, (submitted), July 04, 2025.

Start-up, Technology Transfer and Commercialization

E-Skin Displays Inc., California (http://www.eskindisplays.com): The key goal of the company is to develop novel optoelectronic devices: a novel class of thin-film flexible reflective displays for various applications ranging from e-readers, advertisement billboards, camouflage etc., energy saving structural color paint, infrared energy harvesting, uncooled infrared cameras etc.

- The startup raised over $5M from various federal agencies like DARPA, Army, corporations like Lexus, L'Oreal, Merck Germany and also from VCs.
- **Plasmonic Paint:** The plasmonic structural color paint is under volume scale-up process for prospective customers like Ferrari, BMW to name a few.
- **IR Camera:** The graphene based uncooled infrared camera is under development with Teledyne FLIR and BAE systems.
- **Dopamine Sensor for Brain Monitoring:** The human trial is underway in collaboration with Orlando Health.

SELECTED CONFERENCE <u>INVITED TALKS and SESSION CHAIR</u>

- **(KEYNOTE) Talk**, "MCT-Graphene Heterostructure for Room Temperature LWIR Imaging", II-VI Conference, Chicago, Sept 29-Oct 2, 2025.

- **(International Webinar) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene", Infrared Sensors Technology", Organizer: **Laser Focus World**, International Webinar, September 25, 2025.
- **(INVITED) Talk**, "Ultralight Energy Saving Structural Color Paint", SPIE Photonics West, San Francisco, January 28-30, 2025.
- **(PLENARY) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene", Infrared Sensors Technology", Salt Lake City, Kolkata, India, December 20-22, 2024.
- **(PLENARY) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene", Optical Society of America (OSA) Latin America Optics and Photonics Conference (LAOP), Puerto Vallarta, Mexico, November 10-15, 2024.
- **(KEYNOTE) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene", IEEE International Conference on Photonics (IEEE ICP), Pulau Pinang, Malasia, August 27-29, 2024.
- **(KEYNOTE) Talk**, "Ultralight Energy Saving Structural Color Paint", Euro-Mediterranean Conference on Materials and Renewable Energies, Marrakesh, Morrocco, June 3-6, 2024.
- **(KEYNOTE) Talk**, "Ultralight Energy Saving Structural Color Paint", Cleantech Energy Summit, Chapel Hill, NC, March 20-23, 2024.
- **(INVITED) Talk**, "Ultralight Energy Saving Structural Color Paint", SPIE Photonics West, San Francisco, January 28-Feb 1, 2024.
- **(PLENARY) Talk**, "Low Energy Photon Detection", Mexican Optics and Photonics Meeting, Monterrey, Mexico, Nov 16-19, 2023.
- **(INVITED) Talk**, "Plasmonic Structural Color Paint", MRS Fall Meeting, Boston, Nov 26-Dec 1, 2023.
- **(PLENARY) Talk**, "Coating Forum", Athens, Greece, Nov 3, 2023.
- **(INVITED) Talk**, "Ultralight Energy Saving Structural Color Paint", OSA Frontier in Optics (FiO) Conference, Tacoma, WA, Oct 9-12, 2023.
- **(INVITED) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene", META Conference, Paris, **France**, July 20, 2023.
- **(INVITED) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene", PIERS Conference, Prague, **Czech Republic**, July 5, 2023.
- **(INVITED) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene", NASA Jet Propulsion Lab (JPL), Pasadena, **California**, March 16, 2023.
- **(INVITED) Talk**, "Structural Color based Sensing", Samsung Research Lab, Pasadena, **California**, March 15, 2023.
- **(INVITED) Talk**, "Tunable and multifunctional optoelectronic devices, SPIE Smart Materials Conference Meeting, **Long Beach, California**, March 13-16, 2023.
- **(KEYNOTE) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene, IEEE MAPCON Conference, Bangalore, **India**, Dec 12-16, 2022.
- **(PLENARY) Talk**, "Infrared Imaging", ExpoIngeniería Conference, Medellin, **Colombia**, Oct 26-29, 2022.
- **(INVITED) Talk**, "Structural Color based Displays and Paint", META Conference, **Malaga, Spain**, June 2022.
- **(INVITED) Talk**, "Tunable and multifunctional optoelectronic devices, MRS Spring Meeting, **Honolulu, Hawai**, May 8-13, 2022.

- **(KEYNOTE) Talk**, "Building Uncooled Infrared Camera based on One Atom Thick Graphene, **Marrakech, Morocco**, May 23-27, 2022.
- **(INVITED) Talk**, "Structural Color based Displays and Paint", SPIE Photonics West, **San Francisco, CA**, Jan 8-13, 2022.
- **(INVITED) Talk**, "Dirac Plasmon-Assisted Asymmetric Hot Carrier Generation for Room-Temperature Infrared Detection", International Conference on Nano-photonics and Nano-optoelectronics Conference (ICNN), Yokohama, **Japan**, April 20 2021.
- **(INVITED) Talk**, "*Neurotransmitter Detection and Brain Monitoring*", Simon Fraser University, Canada, April 7, 2021.
- **(INVITED) Talk**, "Infrared Detection and Sensing", NGA-DARPA Symposium, January 6, 2021.
- **(INVITED) Talk**, *"Adaptive Infrared Signal Control,* **NGA/DoD**, June 18, 2020.
- **(INVITED) Talk** OSA-Harvard Flat Optics Conference, Washington DC, Feb 25, 2020.
- **(INVITED) Talk** at II-VI Conference, Chicago, Nov 20, 2019.
- **(INVITED) Talk** at IEEE IPC Conference, San Antonio, Tx, Oct 01, 2019.
- **(INVITED) Talk** at IEEE RAPID Conference, Pensacola, FL, Aug 30, 2019.
- **(INVITED) Talk and Session Chair** at ICMAT Conference, Singapore, June 26, 2019.
- **(INVITED) Talk** at SPIE Photonics West, San Francisco, Feb 3, 2019.
- **(INVITED) Talk** at Conference on Electronic Materials and Nanotechnology for Green Environment (ENGE 2018), Jeju Island, South Korea, Nov 11-14, 2018.
- **(INVITED) Symposium Chair** of META Conference - 2018, Marseille, France, June, 2018.
- **(INVITED) Talk** at META Conference - 2018, Marseille, France, June, 2018.
- **(INVITED) Talk** at NASA Jet Propulsion Laboratory, Pasadena, CA, May 21, 2018.
- **(INVITED) Talk** at SPIE DCS Conference, Orlando, April 2018.
- **(INVITED) Talk** at SPIE Photonics West, San Francisco, January 29, 2018.
- **(INVITED) Talk** at International Display Workshop (IDW-2017), Sendai, Japan, December 7, 2017.
- **(INVITED) Talk** at National University of Singapore (NUS), Singapore, December 12, 2017.
- **(INVITED) Talk** at Conference on Lasers and Electro-Optics Conference (CLEO - Pacific Rim) - 2017, Singapore, August 2, 2017.
- **(INVITED) Talk** at META Conference - 2017, Incheon, South Korea, July 27, 2017.
- **(INVITED) Talk** Electron, Ion, Photon Technology and Nanofabrication Conference - EIPBN 2017, Orlando, Florida, June 2, 2017.
- **(INVITED) Talk** at Optical Society of America's Latin American Optics and Photonics (LAOP) workshop, Guadajara, Mexico, Feb 19-24, 2017.
- **(INVITED) Symposium and Session Chair** of IEEE Photonics Conference, Hawaii, October 2016.
- **(PLENARY) Plenary Speaker** of Optical Society of America's Latin American Optics and Photonics (LAOP) conference, Medellin, Colombia, Aug 22-15, 2016.
- **(INVITED)** Optical Society of America (OSA) Advanced Photonics Congress, Vancouver, Canada, July 20, 2016.
- **(INVITED)** Tech Transfer Symposium, CLEO - Conference on Lasers and Electro-Optics, San Jose, CA, June 2016.
- **(INVITED)** Harvard Nanoscribe Laser Lithography Symposium, **Harvard University**, MA, June 22-23, 2016.
- **(INVITED)** OSA Frontier in Optics FiO-2015 Conference, San Jose, CA, October 2015.

- **(INVITED)** Session Chair OSA Frontier in Optics FiO-2015 Conference, San Jose, CA, October 2015.
- **(INVITED)** META-2015 Conference, New York, NY, August 2015
- **(INVITED)** SPIE Photonics West Conference, San Francisco, Feb 12, 2015.
- **(INVITED)** Session Chair SPIE Photonics West Conference, San Francisco, Feb 2015.
- **(INVITED)** OSA Latin America Optics and Photonics Conference (LAOP), Cancun, Mexico, November 2014.
- **(INVITED)** SPIE Photonics North Conference, Montreal, Canada, May, 2014.
- **(INVITED) Plasmonic Nanostructures for Enhanced Light-Matter Interactions,** NanoFlorida Conference, Gainesville, Florida, September 2013.
- **(INVITED) Fabrication of Metamaterials,** CREOL Industrial Affiliates Day, March 2013.
- **(INVITED) Optical Nanostructures for Enhanced Light-Matter Interactions and Energy Harvesting,** AVS Symposium, Orlando, March 2013.
- **(INVITED) Three-Dimensional Structure Design, Fabrication and Nanopatterning I,** Conference Session Chair**, Frontier of Optics/Laser Science Conference**, San Jose, CA, October 2011.
- **(INVITED) Printing and Molding Approaches for 3D Metamaterials and Plasmonic Crystals,** Invited Talk, **Frontier of Optics/Laser Science Conference**, San Jose, CA, October 2011.
- **(INVITED) Large Area Printed Metamaterials**, Invited Talk**, MRS Spring Meeting**, San Francisco, April 2011.
- **(INVITED) Light Trapping in Thin Silicon Solar Cells**, Invited Talk, iOptics Seminar Series, **University of Illinois, Urbana-Champaign**, Illinois, USA, Feb 2011.
- **(INVITED) Three-Dimensional Nanostructures**, Invited Talk, **DOE Energy Frontier Research Centers** (EFRC) symposium. March 2010.
- **(INVITED) Diffractive Optics Laser Lithography**, Invited Talk, **California Institute of Technology**, Pasadena, California, USA, June 2009.
- **(INVITED) Fabrication of 3D Photonic Crystals**, Invited Talk, **University of Illinois, Urbana-Champaign**, Illinois, USA, June 2009.

EDITORIAL/REFEREEING ACTIVITIES

- Associate Editor of **Nature** Publishing Group's Scientific Reports Journal
- Guest Editor **Proceedings of the National Academy of Sciences (PNAS)**
- Feature Editor Applied Optics Journal

- **External Reviewer**: National Science Foundation (USA), US Army, European Commission, National Science Foundation of Poland, Université de Bordeaux-France, ROMANIAN - U.S. FULBRIGHT COMMISSION, NSERC Canada, Royal Society-UK, University of Melbourne-Australia, KAIST-South Korea, Swiss National Science Foundation.

- Reviewer of
    - Science, Nature Nanotechnology, Nature Electronics, PNAS, Science Advances, Scientific Reports, Nature Publishing Group Light Science & Application, Advanced Optical Materials, ACS Photonics, ACS Nano, Nano Letters, Optics Express (OSA journal),

Optics Letters, Applied Physics Letters, Journal of Applied Physics (JAP), Journal of Optical Society America–B (JOSA-B), Applied Optics, IEEE Transaction on Nanotechnology, IEEE Transaction on Quantum Electronics, IEEE Journal of Photonics

Instructional Activities

- OSE6938Z: Special Topic: Photonic Crystals (*Graduate Course*)
- OSE6615: Optoelectronic Device Fabrication (*Graduate Course*)
- IDS 6254: Nanofabrication and Characterization (*Graduate Course*)
- PHY 3323: Electricity & Magnetism –I (*Upper Level Undergraduate Course*)
- PHY 4324: Electricity & Magnetism –II (*Upper Level Undergraduate Course*)

Dissertation/Theses Directed, Student Graduation and PDF Mentoring

Graduated:

1. Sang Lee, Master of Science (**MS**), NanoScience, Fall 2022.
   [Present location: Research Scientist at a Biotech Company, Sofie]
2. Zuriel Caribe, Master of Science (**MS**), NanoScience, Summer 2021.
   [Present location: PhD at MSE UCF]
3. Sushrut Modak, Master of Science (**MS**), CREOL, Fall 2014.
   [Present location: PhD at PHY UCF]
4. Abraham Vazquez-Guardado, Master of Science (**MS**), CREOL, Spring 2016.
5. Javaneh Borouman, Physics, **PhD**, graduated Spring 2017.
   [Present location: Intel Corp.]
6. Abraham Vazquez-Guardado, CREOL, **PhD**, graduate Spring 2018.
   [Present location: ****Tenure-Track Assistant Professor, NC State (NCSU)**]
7. Daniel Franklin, Physics, **PhD**, graduated Spring 2018.
   [Present location: ****Tenure-Track Assistant Professor, University of Toronto**]
8. Alireza Safaei, Physics, **PhD**, Graduated Spring 2019.
   [Present location: Post-Doctoral Fellow UIUC]
9. Pamela Mastranzo Ortega, INAOE Mexico, **PhD**, Graduated Spring 2023.
   [Present location: Post-Doctoral Fellow INAOE Mexico]
10. Tianyi Guo, Physics, **PhD**, Graduated Fall 2023.
    [Present location: OmniVision Corporation, California.]
11. Aritra Biswas, CREOL-College of Optics and Photonics, **PhD**, Graduated Spring 2024.
    [Present location: Post-Doctoral Fellow UCF]

Post-Doctoral Fellow Mentoring:

- Dr. Sayan Chandra 2016-2020 (Present: ** **Tenure-Track Assistant Professor, Appalachian State University, North Carolina**)
- Dr. Rinku Saran 2018-20 (Present: Research Assistant**,** Nanyang Technological University (**NTU**), **Singapore**)
- Dr. Souptik Mukherjee 2020-2023
- Dr. Muhammad Waqas Shabbir 2021-2023
- Dr. Pablo Manuel Cencillo 2018-2025
- Dr. Arindam Dasgupta 2022-till date

- Dr. Manobina Karmakar 2022-2024
- Dr. Tianyi Guo 2023 – 2025 [Present location: OmniVision Corporation, California.]
- Dr. Aritra Biswas Summer 2024 – till date

Past and Present Industrial Consulting Activities

- Toyota Corporation
- EPIR Inc., Chicago
- E-Skin Displays Inc., California
- Siva Labs, Chicago
- EMX Internationals
- Moxtek Corporation
- VC Golf Ball Products
- Lee Lasers
- City Labs

Professional Service Activities

- **Symposium Chair** *SPIE Photonics West Conference*, San Francisco, 2019 – till date.
- **Symposium Chair** OSA *CLEO Conference*, San Jose, 2023 – 2024.
- **Chair and Organizer** of "Bio-Inspired Nanophotonics Symposium" of *META Conference* (International Conference on Metamaterials and Plasmonics) – 2017 – till date.
- **Chair** of IEEE Photonics Conference (IPC-2016-17) Nanophotonics Symposium.
- Organizing Committee Member of OSA Novel Optical Materials and Applications (2014-2018).
- Organizing Committee Member of Latin America Optics and Photonics Conference (LOAP) (2104-2018).
- Executive committee member of the Optical Society of America (OSA)'s Optical Fabrication and Testing Technical Group (2015-2018).
- Member of the UCF **University level Conflict of Interest (COI)** committee (2017-Nov 2022).
- **Chair** of Physics, UCF Industrial Partnership and Development Committee, 2023-onwards.
- **Chair** of NSTC, UCF Faculty Search Committee, 2023-24.