

1. DOMENICO PACIFICI

Associate Professor, School of Engineering & Department of Physics
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Associate Professor of Engineering and Physics at Brown University, with research spanning plasmonics, nanophotonics, optical coherence, quantum optics, semiconductor nanostructures, optoelectronics, and micro/nanofabrication-enabled devices. His work has resulted in 100+ peer-reviewed publications, an h-index of 38, and approximately 8,000 citations. He has secured approximately \$4M in completed research funding as PI or Co-PI and approximately \$1M in competitively awarded research-infrastructure funding to modernize and expand Brown's nanofabrication capabilities.

From 2016 to 2026, Pacifici served as Director of the Brown Nanofabrication Central Facility, supporting micro- and nanofabrication research across multiple departments, approximately 60 active users, and approximately 20 PI-led laboratories. His leadership included facility operations, user training, safety/compliance coordination, equipment planning, tool commissioning, SOP/process documentation, and research-infrastructure continuity.

He has taught approximately 1,470+ students across large-enrollment foundational gateway courses and advanced undergraduate and graduate courses.

RESEARCH INTERESTS

The Pacifici Research Group develops experimental platforms and nanostructured materials to manipulate and measure light, surface plasmons, and optical coherence at the nanoscale, with applications in biosensing, optoelectronics, quantum and semiconductor devices, and energy harvesting. Our research has led to significant advancements in plasmonics and nanophotonics, including:

1. **High-Throughput Biochemical Sensors** – Development of plasmonic interferometers for real-time detection of biochemical analytes, glucose/insulin, and Alzheimer's disease biomarkers.
2. **Plasmonic Concentrators** – Enhancement of broadband absorption in thin-film, nanowire, and perovskite solar cells for improved energy harvesting efficiency.
3. **Germanium Quantum Dot and Quantum Well Photodetectors** – Broadband visible-to-near-infrared optical response at room temperature, with high responsivity and internal gain.
4. **Plasmonic and Broadband Interferometry for Optical Material Characterization** – Interferometric techniques to measure optical properties, refractive-index dispersion, and wavelength-dependent optical path delay.
5. **Optical Coherence, Polarization, and Interferometry** – Plasmonic and Michelson interferometry platforms for detecting, manipulating, and characterizing electromagnetic coherence and polarization-dependent interference.
6. **High-Efficiency Fluorescence and Emission Modulation** – Nano-apertures and plasmonic/interferometric structures to enhance or modulate optical emission for sensing applications.
7. **Photovoltaic and Solar-Cell Characterization** – Quantum-efficiency mapping and optical/electronic characterization of nanostructured, thin-film, and semiconductor solar cells.
8. **Optical Properties of Semiconductor Nanostructures** – Characterization of optical bandgaps, absorption, and optoelectronic response in amorphous germanium, Ge quantum wells, Ge quantum dots, and silicon nanowires.

2. EDUCATION

BROWN UNIVERSITY, Providence, Rhode Island, US

M.A. in Engineering, *ad eundem*

2017

UNIVERSITY OF CATANIA, Catania, Italy

Ph.D. in Physics, *cum laude*

2004

Dissertation: *Erbium-doped silicon nanoclusters for Microphotonics*, Advisor: Prof. F. Priolo

UNIVERSITY OF CATANIA, Catania, Italy

Laurea in Physics (Master of Science), *summa cum laude*

2000

Dissertation: *Interaction between silicon nanocrystals and erbium ions*, Advisor: Prof. F. Priolo

3. PROFESSIONAL APPOINTMENTS

BROWN UNIVERSITY, Providence, RI

Associate Professor of Engineering and Associate Professor of Physics

July 1, 2017–present

Associate Professor of Engineering

July 1, 2016–present

Director, Brown Nanofabrication Central Facility (NCF)

2016–2026

Assistant Professor of Engineering

2009–2016

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, Gaithersburg, MD

CNST Visiting Fellow, Nanofabrication Research Group

2017–2018

PML Visiting Fellow, Photonics and Optomechanics Group

2018–present

UNIVERSITY OF MARYLAND, College Park, MD

Visiting Associate Professor, Institute for Research in Electronics & Applied Physics

2017–2018

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, CA

Senior Postdoctoral Scholar, Department of Applied Physics

2007–2009

Postdoctoral Scholar, Department of Applied Physics

2005–2007

UNIVERSITY OF CATANIA, Catania, Italy

Research Fellow, Department of Physics

2004–2005

Graduate Researcher, Department of Physics

2000–2003

4. PUBLICATIONS

A. REFEREED JOURNAL ARTICLES

1. Dingdong Li, Rachel Odessey, Dongfang Li, and **D. Pacifici**, *Plasmonic interferometers as TREM2 sensors for Alzheimer's disease*, *Biosensors* 11 (7), 217 (2021).
2. S. Shi, **D. Pacifici**, and A. Zaslavsky, *Fast and efficient germanium quantum dot photodetector with an ultrathin active layer*, *Applied Physics Letters* 119 (22), 221108 (2021).
3. S. Shi, A. Zaslavsky, and **D. Pacifici**, *High-performance germanium quantum dot photodetectors: Response to continuous wave and pulsed excitation*, *Applied Physics Letters* 117 (25), 251105 (2020).
4. T. Shen, Q. Tan, Z. Dai, N. P. Padture, and **D. Pacifici**, *Arrays of plasmonic nanostructures for absorption enhancement in perovskite thin films*, *Nanomaterials* 10 (7), 1342 (2020).
5. R. Odessey, T. Shen, D. Oller, D. He, J.-H. Kim, J. Xu, and **D. Pacifici**, *Reduced angle sensitivity of structural coloration on an industrial aluminium platform*, *Coloration Technology* 136 (3), 296-301 (2020).
6. J. H. Strait, G. Holland, W. Zhu, C. Zhang, A. Agrawal, **D. Pacifici**, and H. J. Lezec, *Revisiting the photon-drag effect in metal films*, *Physical Review Letters* 123, 053903 (2019).
7. M. Chen, M.-G. Ju, H. F. Garces, A. D. Carl, L. K. Ono, Z. Hawash, Y. Zhang, T. Shen, Y. Qi, R. L. Grimm, **D. Pacifici**, X. C. Zeng, Y. Zhou, N. P. Padture, *Highly stable and efficient all-inorganic lead-free perovskite solar cells with native-oxide passivation*, *Nature Communications* 10 (1), 16 (2019).
8. S. Siontas, D. Li, H. Wang, A.V.P.S. Aravind, A. Zaslavsky, and **D. Pacifici**, *High-performance germanium quantum dot photodetectors in the visible and near infrared*, *Materials Science in Semiconductor Processing* 92, 19-27 (2019).

9. T. Shen, S. Siontas, **D. Pacifici**, *Plasmon-enhanced thin-film perovskite solar cells*, The Journal of Physical Chemistry C 122 (41), 23691-7 (2018).
10. S. Siontas, H. Wang, D. Li, A. Zaslavsky, **D. Pacifici**, *Broadband visible-to-telecom wavelength germanium quantum dot photodetectors*, Applied Physics Letters 113 (18), 181101 (2018).
11. De He, Zhijun Liu, Gustavo E Fernandes, Tianyi Shen, Declan Oller, **D. Pacifici**, Jin Ho Kim, Jimmy Xu, *High-purity red coloration via mode-selective absorption in a layered thin-film cavity*, AIP Advances 8 (6), 065226 (2018).
12. D. Li and **D. Pacifici**, *Strong Amplitude and Phase Modulation of Optical Spatial Coherence with Surface Plasmon Polaritons*, Science Advances 3 (10), e1700133 (2017).
13. D. Oller, D. He, J.H. Kim, **D. Pacifici**, J. Xu, G.E. Fernandes, *Colour gamuts arising from absorber–dielectric–metal optical resonators*, Coloration Technology 133 (6), 441-448 (2017).
14. S. Siontas, D. Li, P. Liu, S. Aujla, A. Zaslavsky, and **D. Pacifici**, *Low-temperature operation of high-efficiency germanium quantum dot photodetectors in the visible and near infrared*, physica status solidi (a) 215, 1700453 (2017).
15. D. Li, J. Feng, **D. Pacifici**, *Higher-order surface plasmon contributions to passive and active plasmonic interferometry*, Optics Express 24 (24), 27309–27318 (2016).
16. D. Morrill, D. Li, and **D. Pacifici**, *Measuring subwavelength spatial coherence with plasmonic interferometry*, Nature Photonics 10, 681–687 (2016) – Article.
17. S. Siontas, P. Liu, A. Zaslavsky, **D. Pacifici**, *Noise performance of high-efficiency germanium quantum dot photodetectors*, Applied Physics Letters 109 (5), 053508 (2016).
18. J. Feng, **D. Pacifici**, *A spectroscopic refractometer based on plasmonic interferometry*, Journal of Applied Physics 119 (8), 083104 (2016).
19. D. Li, J. Feng, **D. Pacifici**, *Nanoscale optical interferometry with incoherent light*, Scientific Reports 6, 20836 (2016).
20. P. Liu, P. Longo, A. Zaslavsky, and **D. Pacifici**, *Optical bandgap of single- and multi-layered amorphous germanium ultra-thin films*, Journal of Applied Physics 119, 014304-1–9 (2016).
21. D. Oller, G. Fernandes, S. Siontas, J. Xu, **D. Pacifici**, *Scalable physical coloration*, Materials Research Bulletin 83, 556–562 (2016).
22. J. Feng, D. Li, **D. Pacifici**, *Circular slit-groove plasmonic interferometers: a generalized approach to high-throughput biochemical sensing*, Optical Materials Express 5, 2742–2753 (2015).
23. P. Zhang, P. Liu, S. Siontas, A. Zaslavsky, **D. Pacifici**, J.-Y. Ha, S. Krylyuk, A.V. Davydov, *Dense nanoimprinted silicon nanowire arrays with passivated axial pin junctions for photovoltaic applications*, Journal of Applied Physics 117, 125104-1–7 (2015).
24. S. Cosentino, E. G. Barbagiovanni, I. Crupi, M. Miritello, G. Nicotra, C. Spinella, **D. Pacifici**, S. Mirabella, A. Terrasi, *Size dependent light absorption modulation and enhanced carrier transport in germanium quantum dots devices*, Solar Energy Materials and Solar Cells 135, 22–28 (2015).
25. V. S. Siu, J. Feng, P. W. Flanigan, G. T. R. Palmore, and **D. Pacifici**, *A “plasmonic cuvette”: dye chemistry coupled to plasmonic interferometry for glucose sensing*, Nanophotonics 3, 125–140 (2014).
26. K. T. Gunay, P. W. Flanigan, Pei Liu, and **D. Pacifici**, *Polarization dependence of light transmission through individual nanoapertures in metal films*, Journal of the Optical Society of America B 31, 1150–1158 (2014).

27. S. Cosentino, S. Mirabella, Pei Liu, Son T Le, M. Miritello, S. Lee, I. Crupi, G. Nicotra, C. Spinella, D. Paine, A. Terrasi, A. Zaslavsky, **D. Pacifici**, *Role of Ge nanoclusters in the performance of photodetectors compatible with Si technology*, Thin Solid Films 548, 551–555 (2013).
28. P. W. Flanigan, A. E. Ostfeld, N. G. Serrino, Z. Ye, and **D. Pacifici**, *A generalized “cut-and-projection” method for the generation of quasiperiodic plasmonic concentrators for ultra-thin film photovoltaics*, Optics Express 21, 2757–2776 (2013).
29. Pei Liu, S. Cosentino, Son T. Le, S. Lee, D. Paine, A. Zaslavsky, S. Mirabella, M. Miritello, I. Crupi, A. Terrasi, and **D. Pacifici**, *Transient photoresponse and incident power dependence of high-efficiency germanium quantum dot photodetectors*, Journal of Applied Physics 112, 083103 (2012).
30. J. Feng, V. Siu, A. Roelke, V. Mehta, S. Rhieu, G.T.R. Palmore, and **D. Pacifici**, *Nanoscale Plasmonic Interferometers for Multispectral, High-Throughput Biochemical Sensing*, Nano Letters 12, 602–609 (2012).
31. S. Cosentino, P. Liu, Son T. Le, S. Lee, D. Paine, A. Zaslavsky, S. Mirabella, M. Miritello, I. Crupi, A. Terrasi, and **D. Pacifici**, *High-efficiency silicon-compatible photodetectors based on Ge quantum dots*, Applied Physics Letters 98, 221107 (2011).
32. A. Ostfeld and **D. Pacifici**, *Plasmonic concentrators for enhanced light absorption in ultra-thin film organic photovoltaics*, Applied Physics Letters 98, 113112 (2011).
33. P. N. Saeta, V. E. Ferry, **D. Pacifici**, J. N. Munday, H. A. Atwater, *How much can guided modes enhance absorption in thin solar cells?*, Optics Express 17, 20975–20990 (2009).
34. M. J. Dicken, L. A. Sweatlock, **D. Pacifici**, H. J. Lezec, K. Bhattacharya, H. A. Atwater, *Electro-optic modulation in thin film barium titanate plasmonic interferometers*, Nano Letters 8, 4048–4052 (2008).
35. V. Ferry, L. A. Sweatlock, **D. Pacifici**, H. A. Atwater, *Plasmonic nanostructure design for efficient light coupling into solar cells*, Nano Letters 8, 4391–4397 (2008).
36. **D. Pacifici**, H. J. Lezec, L. A. Sweatlock, R. J. Walters, H. A. Atwater, *Universal optical transmission features in periodic and quasiperiodic hole arrays*, Optics Express 16, 9222–9238 (2008).
37. **D. Pacifici**, H. J. Lezec, H. A. Atwater, J. Weiner, *Quantitative determination of optical transmission through subwavelength slit arrays in Ag films: Role of surface wave interference and local coupling between adjacent slits*, Physical Review B 77, 115411 (2008).
38. **D. Pacifici**, *Plasmonics: A shifting perspective*, Nature Photonics 1, 689 (2007).
39. **D. Pacifici**, H. J. Lezec, H. A. Atwater, *All-Optical modulation by plasmonic excitation of CdSe quantum dots*, Nature Photonics 1, 402–406 (2007).
40. F. Iacona, A. Irrera, G. Franzò, **D. Pacifici**, I. Crupi, M. Miritello, C. Presti, F. Priolo, *Silicon-based light-emitting devices: properties and applications of crystalline, amorphous and Er-doped nanoclusters*, IEEE Journal of Selected Topics in Quantum Electronics 12, 1596 (2006).
41. R. Espiau de Lamaestre, H. Bernas, **D. Pacifici**, G. Franzò and F. Priolo, *Evidence for a “dark exciton” state of PbS nanocrystals in a silicate glass*, Applied Physics Letters 88, 181115 (2006).
42. J. S. Biteen, **D. Pacifici**, N. S. Lewis, H. A. Atwater, *Enhanced radiative emission rate and quantum efficiency in coupled Si nanocrystal-nanostructured gold emitters*, Nano Letters 5, 1768 (2005).
43. **D. Pacifici**, L. Lanza, G. Franzò, F. Iacona, F. Priolo, *Revealing the sequential nature of the Si nanocluster-Er interaction by variable pulse-duration excitation*, Physical Review B 72, 45349 (2005).
44. A. Irrera, F. Iacona, G. Franzò, S. Boninelli, **D. Pacifici**, M. Miritello, C. Spinella, D. Sanfilippo, G. Di Stefano, P.G. Fallica, F. Priolo, *Correlation between electroluminescence and structural properties of Si nanoclusters*, Optical Materials 27, 1031 (2005).

45. F. Enrichi, G. Mattei, C. Sada, E. Trave, **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, M. Prassas, M. Falconieri, E. Borsella, *Study of the energy transfer mechanism in different glasses co-doped with Si nanoaggregates and Er³⁺ ions*, Optical Materials 27, 904 (2005).
46. F. Enrichi, G. Mattei, C. Sada, E. Trave, **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, M. Prassas, M. Falconieri, E. Borsella, *Evidence of energy transfer in an aluminosilicate glass co-doped with Si nanoaggregates and Er³⁺ ions*, Journal of Applied Physics 96, 3925 (2004).
47. M. Wodjak, M. Klik, M. Forcales, O.B. Gusev, T. Gregorkiewicz, **D. Pacifici**, G. Franzò, F. Priolo, and F. Iacona, *Sensitization of Er luminescence by Si nanoclusters*, Physical Review B 69, 233315 (2004).
48. A. Irrera, M. Miritello, **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, D. Sanfilippo, G. Di Stefano, P.G. Fallica, *Electroluminescence properties of SiO_x layers implanted with rare earth ions*, Nuclear Instruments and Methods in Physics Research B 216, 222 (2004).
49. L. Dal Negro, P. Bettotti, M. Cazzanelli, L. Pavesi, and **D. Pacifici**, *Applicability conditions and experimental analysis of the variable stripe length method for gain measurements*, Optics Communications 229, 337 (2004).
50. F. Enrichi, G. Mattei, C. Sada, E. Trave, E. Borsella, **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, and M. Prassas, *Luminescence properties of a multi-component glass co-implanted with Si and Er*, Solid State Phenomena 99–100, 37–40 (2004).
51. **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, and L. Dal Negro, *Modeling and perspectives of the Si nanocrystals-Er interaction for optical amplification*, Physical Review B 67, 245301 (2003).
52. L. Dal Negro, M. Cazzanelli, L. Pavesi, S. Ossicini, **D. Pacifici**, G. Franzò, and F. Priolo, *Dynamics of stimulated emission in silicon nanocrystals*, Applied Physics Letters 82, 4636 (2003).
53. G. Franzò, S. Boninelli, **D. Pacifici**, F. Priolo, F. Iacona, and C. Bongiorno, *Sensitizing properties of amorphous Si clusters on the 1.54 μ m luminescence of Er in Si-rich SiO₂*, Applied Physics Letters 82, 3871 (2003).
54. N. Daldosso, G. Dalba, R. Grisenti, L. Dal Negro, L. Pavesi, F. Rocca, F. Priolo, G. Franzò, **D. Pacifici**, and F. Iacona, *X-Ray Absorption study of light emitting Si nanocrystals*, Physica E – Low Dimensional Systems & Nanostructures 16, 321–325 (2003).
55. L. Dal Negro, M. Cazzanelli, N. Dal Dosso, Z. Gaburro, L. Pavesi, F. Priolo, **D. Pacifici**, G. Franzò, and F. Iacona, *Stimulated emission in Plasma Enhanced Chemical Vapour Deposited Silicon nanocrystals*, Physica E – Low Dimensional Systems & Nanostructures 16, 297–308 (2003).
56. **D. Pacifici**, G. Franzò, F. Iacona, and F. Priolo, *Amorphization and recrystallization of ion implanted Si nanocrystals probed through their luminescence properties*, Physica E – Low Dimensional Systems & Nanostructures 16, 404–409 (2003).
57. A. Irrera, **D. Pacifici**, M. Miritello, G. Franzò, F. Priolo, F. Iacona, D. Sanfilippo, G. Di Stefano, and P.G. Fallica, *Electroluminescence properties of light emitting devices based on silicon nanocrystals*, Physica E – Low-Dimensional Systems & Nanostructures 16, 395–399 (2003).
58. **D. Pacifici**, A. Irrera, G. Franzò, M. Miritello, F. Iacona, and F. Priolo, *Erbium-doped Si nanocrystals: optical properties and electroluminescent devices*, Physica E – Low Dimensional Systems & Nanostructures 16, 331–340 (2003).
59. **D. Pacifici**, G. Franzò, F. Iacona, S. Boninelli, A. Irrera, M. Miritello, and F. Priolo, *Er doped Si nanostructures*, Materials Science and Engineering B 105/1–3, 197–204 (2003).

60. F. Iacona, G. Franzò, E.C. Moreira, **D. Pacifici**, A. Irrera, F. Priolo, *Luminescence properties of Si nanocrystals embedded in optical microcavities*, Materials Science and Engineering C 19, 377–381 (2002).
61. L. Rebohle, T. Gebel, J. von Borany, W. Skorupa, M. Helm, **D. Pacifici**, G. Franzò, F. Priolo, *Transient behavior of the strong violet electroluminescence of Ge-implanted SiO₂ layers*, Applied Physics B 74, 53 (2002).
62. F. Iacona, G. Franzò, E.C. Moreira, **D. Pacifici**, F. Priolo, *Luminescence from Si Nanocrystals and Er ions embedded in resonant cavities*, Solid State Phenomena 82–84, 617–622 (2002).
63. F. Iacona, **D. Pacifici**, A. Irrera, M. Miritello, G. Franzò, F. Priolo, D. Sanfilippo, G. Di Stefano, and P.G. Fallica, *Electroluminescence at 1.54 μ m in Er-doped Si nanocluster-based devices*, Applied Physics Letters 81, 3242 (2002).
64. A. Irrera, **D. Pacifici**, M. Miritello, G. Franzò, F. Priolo, F. Iacona, D. Sanfilippo, G. Di Stefano, and P.G. Fallica, *Excitation and de-excitation properties of silicon quantum dots under electrical pumping*, Applied Physics Letters 81, 1866 (2002).
65. **D. Pacifici**, E.C. Moreira, G. Franzò, V. Martorino, F. Priolo, and F. Iacona, *Defect production and annealing in ion-irradiated Si nanocrystals*, Physical Review B 65, 144109 (2002).
66. G. V. Prakash, N. Daldosso, E. Degoli, F. Iacona, M. Cazzanelli, Z. Gaburro, G. Pucker, P. Dalba, F. Rocca, E.C. Moreira, G. Franzò, **D. Pacifici**, F. Priolo, C. Arcangeli, A.B. Filonov, S. Ossicini, L. Pavesi, *Structural and optical properties of PECVD grown Silicon nanocrystals*, Journal of Nanoscience and Nanotechnology 1, 159 (2001).
67. F. Priolo, G. Franzò, F. Iacona, **D. Pacifici**, V. Vinciguerra, *Excitation and non-radiative de-excitation processes in Er-doped Si nanocrystals*, Materials Science and Engineering B 81, 9 (2001).
68. G. Franzò, E.C. Moreira, **D. Pacifici**, F. Priolo, F. Iacona, C. Spinella, *Ion Beam Synthesis of Undoped and Er-Doped Si Nanocrystals*, Nuclear Instruments and Methods in Physics Research B 175–177, 140 (2001).
69. F. Priolo, G. Franzò, **D. Pacifici**, V. Vinciguerra, F. Iacona, A. Irrera, *Role of energy transfer in the optical properties of undoped and Er-doped interacting Si nanocrystals*, Journal of Applied Physics 89, 264 (2001).
70. F. Priolo, G. Franzò, F. Iacona, E.C. Moreira, **D. Pacifici**, *Luminescence from Si Nanocrystals and Er³⁺ Ions Embedded in Resonant Cavities*, Solid State Phenomena 82–84, pp. 617–622 (2001).
71. G. Franzò, **D. Pacifici**, V. Vinciguerra, F. Priolo, F. Iacona, *Er³⁺ ions–Si nanocrystals interactions and their effects on the luminescence properties*, Applied Physics Letters 76, 2167 (2000).

B. CHAPTERS IN BOOKS

72. R. K. Aaron, O. Fadil, J. Racine, and **D. Pacifici**, *Engineering and Clinical Aspects of Photoplethysmography*, Book Chapter, *Skeletal Circulation in Clinical Practice*, Ed. R. K. Aaron, World Scientific (2016).
73. P. W. Flanagan, A. E. Ostfeld, Z. Ye, N. G. Serrino, and **D. Pacifici**, *Quasiperiodic plasmonic concentrators for ultra-thin film solar cells*, Book Chapter, *Optics of Aperiodic Structures: Fundamentals and Device Applications*, Ed. Luca Dal Negro, Pan Stanford Publishing Pte. Ltd. (2013).
74. **D. Pacifici**, H. J. Lezec, L. A. Sweatlock, C. de Ruiter, V. Ferry, H. A. Atwater, *All-optical plasmonic modulators and interconnects*, in *Plasmonic Nanoguides and Circuits*, Ed. S. Bozhevolnyi, Pan Stanford Publishing Pte. Ltd., pp. 189–232 (2009).

75. A. Irrera, **D. Pacifici**, M. Miritello, G. Franzò, F. Priolo, F. Iacona, D. Sanfilippo, G. Di Stefano, P.G. Fallica, *Light emitting devices based on silicon nanocrystals*, in *Towards the first silicon laser* edited by L. Pavesi, S. Gaponenko, L. Dal Negro, NATO Science Series vol 93 (Kluwer Academic Publishers, Dordrecht 2003) pp. 29–43.
76. L. Dal Negro, M. Cazzanelli, Z. Gaburro, P. Bettotti, L. Pavesi, F. Priolo, G. Franzò, **D. Pacifici**, F. Iacona, *Stimulated emission in silicon nanocrystals: Gain measurement and rate equation modelling*, in *Towards the first silicon laser* edited by L. Pavesi, S. Gaponenko, L. Dal Negro, NATO Science Series vol 93 (Kluwer Academic Publishers, Dordrecht 2003) pp. 145–164.

C. CONFERENCE PROCEEDINGS (PEER-REVIEWED)

77. J. Strait, G. Holland, W. Zhu, C. Zhang, A. Agrawal, **D. Pacifici**, H. J. Lezec. *Revisiting the Photon-Drag Effect in Gold Films*, Bulletin of the American Physical Society, (2019, Mar 5).
78. J. H. Strait, G. Holland, B. R. Ilic, A. Agrawal, **D. Pacifici**, H. J. Lezec. *Probing Light-Metal Interaction with the Photon-Drag Effect*, Laser Science 2018 Sep 16 (pp. JW4A-56). Optical Society of America.
79. H. J. Lezec, G. Holland, R. Ilic, C. Zhang, W. Zhu, A. Agrawal, **D. Pacifici**, J. H. Strait, *Revisiting the Photon-Drag Effect in Thin Metal Films*, Integrated Photonics Research, Silicon and Nanophotonics, Optical Society of America, ITu4I. 4 (7/2/2018).
80. J. H. Strait, G. Holland, B. R. Ilic, A. Agrawal, **D. Pacifici**, H. J. Lezec, *Revisiting the Photon-Drag Effect in Thin Metal Films*, CLEO: QELS_Fundamental Science, Optical Society of America, FF2F. 1 (5/13/2018).
81. S. Boninelli, **D. Pacifici**, B. Garrido (editors), *Nanoparticles in Dielectric Matrix: From Synthesis to Device Applications for Photonics, Electronics, and Bio-Sensing*, Phys. Status Solidi A 215, 1701073 (2018).
82. P. W. Flanigan, A. E. Ostfeld, Z. Ye, N. G. Serrino, and **D. Pacifici**, *Quasiperiodic plasmonic concentrators for enhanced light absorption in ultra-thin film solar cells*, MRS Proceedings, 1493, pp. 323–328 (2013).
83. J. Feng, V. Siu, A. Roelke, V. Mehta, S. Rhieu, G.T.R. Palmore, and **D. Pacifici**, *Plasmonic interferometry for biosensing*, IEEE Proc. Lester Eastman Conf. on High Performance Devices (LEC), August 7-9 (2012).
84. P. W. Flanigan, A. E. Ostfeld, Z. Ye, N. G. Serrino, A. Plummer, and **D. Pacifici**, *Plasmonic concentrators for enhanced light absorption in ultra-thin film organic solar cells*, IEEE Proc. Lester Eastman Conf. on High Performance Devices (LEC), August 7-9 (2012).
85. P. Liu, S. Cosentino, S. T. Le, S. Lee, D. Paine, A. Zaslavsky, S. Mirabella, M. Miritello, I. Crupi, A. Terrasi, and **D. Pacifici**, *Fast high-efficiency Germanium quantum dot photodetectors*, IEEE Proc. Lester Eastman Conf. on High Performance Devices (LEC), August 7-9 (2012).
86. J. Weiner, H. Lezec, and **D. Pacifici**, "The Electrodynamics of Light Transmission for Subwavelength Single Apertures and Aperture Arrays," in *Imaging and Applied Optics Congress*, OSA Technical Digest (CD) (Optical Society of America), paper MTuC2 (2010).
87. J. Weiner, **D. Pacifici**, and G. Lévesque, "The Physics of Extraordinary Optical Transmission through Subwavelength Slits and Slit Arrays," in *Frontiers in Optics 2008/Laser Science XXIV/Plasmonics and Metamaterials/Optical Fabrication and Testing*, OSA Technical Digest (CD) (Optical Society of America, 2008), paper MWB3.
88. H. A. Atwater, K. Tanabe, K. Nakayama, V. Ferry, L. Sweatlock, and **D. Pacifici**, "Plasmonic Photovoltaics," in *Solar Energy: New Materials and Nanostructured Devices for High Efficiency*, (Optical Society of America, 2008), paper STuD3.
89. H. Atwater, H. J. Lezec, J. A. Dionne, C. E. Ross, L. A. Sweatlock, D. Pacifici, K. Diest, M. Dicken, and V. Ferry, "Active Plasmonic Structures and Metamaterials," in *Frontiers in Optics 2007/Laser Science*

- XXIII/Organic Materials and Devices for Displays and Energy Conversion*, OSA Technical Digest (CD) (Optical Society of America, 2007), paper FTuM6.
90. **D. Pacifici**, G. Franzò, F. Iacona, A. Irrera, S. Boninelli, M. Miritello, and F. Priolo, *Rare-earth doped Si nanostructures for Microphotonics*, Mat. Res. Soc. Symp. Vol 817 L1.2.1 (2004).
 91. F. Enrichi, G. Mattei, C. Sada, E. Trave, **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, M. Prassas, M. Falconieri, and E. Borsella, *Optical and structural investigation on the energy transfer in a multicomponent glass co-doped with Si nanoaggregates and Er³⁺ ions*, Mat. Res. Soc. Symp. Vol. 817 L1.8.1 (2004).
 92. F. Enrichi, G. Mattei, C. Sada, E. Borsella, **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, and M. Prassas, *Enhancement of Er³⁺ 1.54 μ m Infrared Emission in a Si and Er Co-Implanted Multicomponent Glass*, European Conference on Optical Communications (ECOC-IOOC 2003) Proceedings vol. 3, p. 426 (2003).
 93. F. Iacona, G. Franzò, **D. Pacifici**, A. Irrera, M. Miritello, D. Sanfilippo, G. Di Stefano, P.G. Fallica, and F. Priolo, *Er-Doped Si Nanocrystals as a Candidate for Optical Amplification*, European Conference on Optical Communications (ECOC-IOOC 2003) Proceedings vol. 4, p. 1068 (2003).
 94. F. Priolo, A. Irrera, **D. Pacifici**, M. Miritello, G. Franzò, F. Iacona, D. Sanfilippo, G. Di Stefano, P.G. Fallica, *Dispositivi emettitori di luce basati su nanocristalli di silicio*, Fotonica2003 Proceedings b4.2 (April 2003).
 95. N. Daldosso, G. Das, G. Dalba, S. Larcheri, R. Grisenti, G. Mariotto, L. Pavesi, F. Rocca, F. Priolo, G. Franzò, A. Irrera, M. Miritello, **D. Pacifici**, and F. Iacona, *Silicon nanocrystal nucleation as a function of the annealing temperature in SiO_x films*, Mat. Res. Soc. Symp. Proc. Vol. 770, I1.3.1 (2003).
 96. L. Dal Negro, M. Cazzanelli, N. Daldosso, L. Pavesi, F. Priolo, G. Franzò, **D. Pacifici**, and F. Iacona, *Time-resolved gain dynamics in silicon nanocrystals*, Mat. Res. Soc. Symp. Proc. Vol. 770, I3.4.1 (2003).
 97. **D. Pacifici**, G. Franzò, F. Iacona, F. Priolo, *Coupling and cooperative up-conversion coefficients in Er-doped Si nanocrystals*, Mat. Res. Soc. Symp. Proc. Vol. 770, pp. 113–118, I6.8.1 (2003).
 98. M. Forcales, M. Wojdak, M. A. J. Klik, T. Gregorkiewicz, O. B. Gusev, G. Franzò, **D. Pacifici**, F. Priolo, F. Iacona, *Si nanocrystals as sensitizers for Er PL in SiO₂*, Mat. Res. Soc. Symp. Proc. Vol. 770, p. 119-124, I6.9.1 (2003).
 99. L. Dal Negro, M. Cazzanelli, Z. Gaburro, P. Bettotti, L. Pavesi, **D. Pacifici**, G. Franzò, F. Priolo, F. Iacona, *Optical gain and stimulated emission in silicon*, Mat. Res. Soc. Symp. Proc. Vol. 738, p. 233-238, G8.8.1 (2003).
 100. A. Irrera, F. Iacona, **D. Pacifici**, M. Miritello, G. Franzò, D. Sanfilippo, G. Di Stefano, P.G. Fallica, and F. Priolo, *Tuning of the electroluminescence from Si nanocrystals through the control of their structural properties*, Mat. Res. Soc. Symp. Proc. Vol. 737, p. 819–824, F11.9 (2003).
 101. F. Priolo, F. Iacona, **D. Pacifici**, A. Irrera, M. Miritello, G. Franzò, D. Sanfilippo, G. Di Stefano, and P.G. Fallica, *Electroluminescent devices based on Er-doped Si nanoclusters*, Mat. Res. Soc. Symp. Proc. Vol. 737, p. 761-766, F9.3 (2003).
 102. L. Dal Negro, B. Danese, Z. Gaburro, P. Bettotti, L. Pavesi, F. Iacona, G. Franzò, **D. Pacifici**, F. Priolo, *Enhanced emission cross section and VSL analysis of erbium coupled silicon nanocrystals*. In: Lasers and Electro-Optics Europe, 2003. CLEO/Europe Conference (2003).
 103. **D. Pacifici**, G. Franzò, F. Iacona, F. Priolo, *Erbium-doped silicon nanoclusters*. In: Conference Proceedings – Italian Physical Society. Vol. 84, pp. 507–522, Editrice Compositori; 1999 (2003).
 104. L. Pavesi, L. Dal Negro, N. Daldosso, Z. Gaburro, M. Cazzanelli, F. Iacona, G. Franzò, **D. Pacifici**, F. Priolo, S. Ossicini, M. Luppi and E. Degoli "Will silicon be the photonics material of the third millennium?" Proceedings of the 26th International Conference on the Physics of Semiconductors vol. 171, pp. 261–268 (Held in Edinburgh 2002), (2003).

105. L. Dal Negro, M. Cazzanelli, Z. Gaburro, L. Pavesi, **D. Pacifici**, F. Priolo, G. Franzò, and F. Iacona, *Optical gain in PECVD grown silicon nanocrystals*, in *Optical properties of nanocrystals* edited by Z. Gaburro, Proceedings of SPIE vol. 4808, 13-27 (2002).
106. L. Pavesi, L. Dal Negro, M. Cazzanelli, C. Mazzoleni, Z. Gaburro, F. Priolo, G. Franzò, **D. Pacifici**, A. Irrera, F. Iacona, "Towards a silicon laser," Highlights INFM (2000/2001).

D. WORK IN REVIEW

107. N/A

E. WORK IN PROGRESS

108. Tianyi Shen, Zixi Lin, Rachel Odessey, Sue Shi, Qiwen Tan, and **D. Pacifici**, *Measuring longitudinal coherence and power spectra of a tunable supercontinuum laser with Michelson interferometry*, (2026).
109. Dongfang Li, Tianyi Shen, and D. Pacifici, *Modulation of optical spatial coherence with photonic modes*, (2026).

Google Scholar Research Metrics (6/1/2026): **8091** citations; h-index **38**; i10-index **68**.

F. PATENTS

The following provisional patents have been filed by the Brown University Technology Venture Office (TVO):

1. Pacifici, D. (2011). Title: *Nanoscale Plasmonic Interferometers for Multispectral, High-Throughput Biochemical Sensing*. U.S. Patent Application 61/546,435, filed October 2011.
2. Pacifici, D. (2012). Title: *High-Efficiency Silicon-Compatible Photodetectors Based on Germanium Quantum dots and Ge/Si Hetero-Nanowires*. International Patent Application PCT/US12/40809, filed June 2012, claiming priority from U.S. Application 61/492,589, filed June 2011.
3. Pacifici, D. (2012). *Plasmonic Interferometry Coupled to Dye Chemistry for Enhanced Selectivity*, submitted to Brown TVO (2012).
Pacifici, D. (2016). Title: *Nanoscale Optical Interferometry with Incoherent Light*. U.S. Provisional Application No. 62/294872, Filing Date: February 12, 2016.
4. Pacifici, D. (2017). Title: *Measuring Subwavelength Spatial Coherence with Plasmonic Interferometry*. U.S. Provisional Patent Application Serial No. 62/556,834. Filing Date: September 11, 2017

The following patents have been published:

1. Dongfang Li, Jing Feng, Domenico Pacifici, *Nanoscale Optical Interferometry with incoherent light*. U.S. Patent Application No.: 62/294872, Filing Date: February 12, 2016.
2. Domenico Pacifici, Henri Lezec, Tayhas Palmore, Vince Siu, Vihang Mehta, Alec Roelke, Steve Rhieu, Jing Feng. *Systems And Methods Enabling High-Throughput, Real Time Detection Of Analytes*. (2014/11/6, US 20140327913, 2013/4/19, WO 2013056137)
Priority Data:
61/546,435 12.10.2011 US
61/662,048 20.06.2012 US
61/581,951 30.12.2011 US
3. Domenico Pacifici, Alexander Zaslavsky. *High-Efficiency Silicon-Compatible Photodetectors Based On Ge Quantum Dots and Ge/Si Hetero-Nanowires*. (2013/12/2, US 14/093,938, 2012/12/7, WO 2012167282)
Priority Data:

61/492,58902.06.2011US

The following patents have been issued:

1. Pacifici D. *et al.* Systems and methods enabling high-throughput, real time detection of analytes. U.S. Patent No. 9,285,314 (March 15, 2016)

G. INVITED LECTURES (INTERNATIONAL CONFERENCES)**PHOTONICS NORTH 2025**, Rogers Centre, Ottawa, Canada**Photonic Materials**

2025

Plasmonic Interferometry for Optical Coherence Modulation and Biochemical Sensing.

EUROPL2024 FRONTIERS IN OPTICS, Nice, France**2nd International Congress And Expo on Optics, Photonics And Lasers**

2024

Plasmonic Interferometry for Optical Coherence Modulation and Biochemical Sensing.

OSA FRONTIERS IN OPTICS, Washington, DC, USA**Laser Science APS/DLS**

2017

Manipulating Optical Coherence with Plasmonic Interferometry.

CLEO CONFERENCE ON LASERS AND ELECTRO-OPTICS, San Jose, CA, USA**QELS-Fundamental session on Nano-Optics and Plasmonics**

2017

The Role of Coherence in Plasmonics and Plasmonic Interferometry.

MATERIALS RESEARCH SOCIETY, San Francisco, CA, USA**Spring Meeting, Symposium: Resonant Optics – Fundamentals and Applications**

2015

Plasmonic Concentrators and Interferometry.

OPTO SPIE PHOTONICS WEST, San Francisco, USA**Photonic and Phononic Properties of Engineered Nanostructures**

2015

Plasmonic Interferometry for Non-invasive Glucose Sensing.

IEEE NANOTECHNOLOGY MATERIALS AND DEVICES CONFERENCE, Aci Castello, Italy**Sponsored by the EU FP7 project WATER**

2014

Plasmonic Interferometry for Biomedical Applications.

MATERIALS RESEARCH SOCIETY, San Francisco, CA, USA**Spring Meeting, Symposium KK: Resonant Optics – Fundamentals and Applications**

2014

Plasmonic Interferometers for Biochemical Sensing and Optical Coherence Measurements.

MATERIALS RESEARCH SOCIETY, San Francisco, CA, USA**Spring Meeting, Symposium II: Emerging Nanophotonic Materials and Devices**

2014

Plasmonic Interferometry: Physics and Applications.

30TH COURSE NANO-STRUCTURES FOR OPTICS AND PHOTONICS, Erice, Italy**Ettore Majorana Foundation and Center for Scientific Culture**

2013

Plasmonic Interferometry for Photovoltaics and Biosensing Applications.

MATERIALS RESEARCH SOCIETY, Boston, USA

Fall Meeting

2012

Germanium Nanostructures Coupled to Plasmonic Concentrators for Efficient Silicon-compatible Optoelectronics.

OPTO SPIE PHOTONICS WEST, San Francisco, USA

Photonic and Phononic Properties of Engineered Nanostructures II

2012

Plasmonic interferometry: a versatile tool for high-throughput biochemical sensors and energy-efficient thin-film solar cells.

EUROPEAN OPTICAL SOCIETY (EOS), Capri, Italy

3rd Topical Meeting on Optical Microsystems & 1st Topical Meeting on Lasers

2009

Applied Plasmonics: surface waves for sensing, switching and energy harvesting.

MATERIALS RESEARCH SOCIETY, San Francisco, CA, USA

Spring Meeting

2009

Active Plasmonics: physics and applications.

NANOMETA 2009, THE EUROPEAN RESEARCH SOCIETY, Tirol, Austria

The 1st European Topical Meeting on Nanophotonics and Metamaterials

2009

Active Plasmonic Devices: novel approaches to the generation and manipulation of surface plasmons.

METAMATERIALS 2008, Pamplona, Spain

2nd International Congress on Advanced Electromagnetic Materials in Microwave and Optics

2008

Active Plasmonic Components and Metamaterials.

PQE, PHYSICS OF QUANTUM ELECTRONICS, Snowbird, UT, USA

The 38th Winter Colloquium on the Physics of Quantum Electronics

2008

Plasmons in slit and hole arrays: role of coherence and short range order for modulators and solar cells.

MATERIALS RESEARCH SOCIETY, San Francisco, CA, USA

Spring Meeting

2004

Rare-earth doped silicon nanostructures for Microphotonics.

EUROPEAN MATERIALS RESEARCH SOCIETY, Strasbourg, France

Spring Meeting

2002

Microcavities and electroluminescent devices based on silicon nanocrystals and rare-earth doped nanocrystals.

SOCIETÀ ITALIANA DI FISICA, Milano, Italy

LXXXVII Congresso nazionale

2001

Photoluminescence from silicon nanocrystals and erbium ions.

H. COLLOQUIA

THE STATE UNIVERSITY OF NEW JERSEY, RUTGERS, New Brunswick, NJ

Laboratory for Surface Modification (LSM) / Institute for Advanced Materials, Devices, and Nanotechnology (IAMDN) – Invited talk

2017

The Role of Coherence in Plasmonics.

UNIVERSITY OF CATANIA, Catania, Italy

Scuola Superiore di Catania - Invited talk

2013

Plasmonic Interferometry: Physics and Applications.

[Video of the seminar: <http://www.youtube.com/watch?v=1rsn6yLW3W8>]

UNIVERSITY OF CATANIA, Catania, Italy

Department of Physics - Invited talk

2013

Plasmonic Interferometry for Photovoltaics and Biosensing Applications.

BROWN UNIVERSITY, Providence, RI, USA

IMNI Brown Bag Seminars - Invited talk

2012

Plasmonics: light concentrators and interferometers for ultra-thin-film photovoltaics and biochemical sensing.

CITY UNIVERSITY OF NEW YORK, New York, NY, USA

CUNY Graduate Center Photonics Colloquium

2010

Applied Plasmonics for Optical Communications, Energy Harvesting and Sensing Applications.

BROWN UNIVERSITY, Providence, RI, USA

Energy Science Seminar - Invited talk

2010

Plasmonic Interferometers for Energy Harvesting.

PRINCETON UNIVERSITY, Princeton, NJ, USA

Department of Electrical Engineering

2009

Plasmonics for Information, Energy and Environmental applications.

BROWN UNIVERSITY, Providence, RI, USA

Invited talk

2009

Active Plasmonics for Optical Communication, Photovoltaics and Sensing Applications.

BELL LABS, Murray Hill, NJ, USA

Invited talk

2009

Plasmonics: a route toward improved efficiency in thin film solar cells.

ICFO-THE INSTITUTE OF PHOTONIC SCIENCES, Barcelona, Spain

ICFO Colloquium

2009

Active Plasmonics for Optical Communication, Photovoltaics and Sensing Applications.

UNIVERSITY OF DELAWARE, Newark, DE, USA

ECE Lecturer Series, Electrical and Computer Engineering

2008

Active Plasmonics for Optical Communication and Photovoltaics.

KAIST, Daejeon, Republic of Korea

Department of Physics

2008

Active plasmonics: ultra low-power all-optical modulators, efficient solar cells, and beyond.

GEORGIA TECH, Atlanta, GA, USA

School of Electrical and Computer Engineering

2008

Active plasmonics: from ultra low-power all-optical modulators to efficient solar cells.

BOSTON UNIVERSITY, Boston, MA, USA**ECE Colloquium, Department of Electrical and Computer Engineering**

2006

Si-based microphotonics: light sources and plasmonic devices.

5. RESEARCH GRANTS

Funding Summary (Completed Awards Only)

- Total completed research funding secured as PI or Co-PI (external and internal): \$3.86M.
- Total competitive infrastructure funding secured for the Brown Nanofabrication Central Facility (NSF MRI and CRF Infrastructure Awards, 2018–2024): \$958,000.
- In addition, participated in a completed \$4.0M NSF RII Track-2 FEC collaborative award (role: Participant).

These awards supported fundamental research in plasmonics, nanophotonics, optoelectronics, biosensing, photovoltaics, and semiconductor devices, while also enabling major modernization of the Brown Nanofabrication Central Facility.

A. CURRENT GRANTS AND AWARDS

2024 Hazeltine Innovation Award (School of Engineering): *Room-temperature broadband (visible to near-infrared) CMOS-compatible quantum dot photodetectors.*

PI: Domenico Pacifici, Co-PI: Alexander Zaslavsky

Award amount: \$67,591. Total period covered 07/01/2024–12/31/2026.

B. COMPLETED AWARDS

2024 Core Research Facility (CRF) Infrastructure Program Award: *Acquisition of a new electron beam evaporator & thin-film deposition system.* The system has been acquired for the Brown University Nanofabrication Central Facility (NCF cleanroom).

PI: Domenico Pacifici, Director of the Brown Nanofabrication Central Facility at the time of award.

Award amount: \$224,500. Total period covered: until 06/30/24.

2023 Core Research Facility (CRF) Infrastructure Program Award: *Acquisition of a new large area ion milling system "ATC Orion Series" from AJA International.* The system has been acquired for the Brown University Nanofabrication Central Facility (NCF cleanroom).

PI: Domenico Pacifici, Director of the Brown Nanofabrication Central Facility at the time of award.

Award amount: \$212,500. Total period covered: until 06/30/23.

2021 Core Research Facility (CRF) Infrastructure Program Award: *Acquisition of a new reactive ion etching (RIE) system "Vision 320 RIE" from Plasma-Therm.* The system has been acquired for the Brown University Nanofabrication Central Facility (NCF cleanroom).

PI: Domenico Pacifici, Director of the Brown Nanofabrication Central Facility at the time of award.

Award amount: \$200,000. Total period covered: until 06/30/21.

2020 Core Research Facility (CRF) Infrastructure Program Award: *Acquisition of an AG Associates Heatpulse 610 Rapid Thermal Processor with improved process gas system.* The system has been acquired for the Brown University Nanofabrication Central Facility (NCF cleanroom).

PI: Domenico Pacifici, Director of the Brown Nanofabrication Central Facility at the time of award.

Award amount: \$20,000. Total period covered: until 06/30/23.

2018–2021 NSF CBET EAGER: *Development of Surface Chemistry and Plasmonic Interferometers for Early-Onset Detection of Alzheimer Disease.*

PI: Domenico Pacifici.

Award amount: \$100,000. Total period covered: 08/15/2018–07/31/21.

2018–2021 NSF MRI: *Acquisition of a Maskless Lithography Tool for the Brown University Nanofabrication Central Facility (NCF).*

Co-PI: Domenico Pacifici. PI: A. Zaslavsky, Co-PI: B. Rubenstein, A. Shukla, D. Stein.

Award amount: \$301,000. Total period covered: 09/01/2018–08/31/21.

2015–2020 NSF SNM: *Physical Nano-Engineering Approaches to Surface Coloration and their Industrial Scale Implementation in Anodized Aluminum.*

Co-PI: Domenico Pacifici. PI: J. Xu, Co-PI: G. Fernandes.

Award amount: \$1,500,000. Total period covered: 09/01/2015–08/31/19.

2015–2020 NSF RII Track-2 FEC: *Low-Cost, Efficient Next-Generation Solar Cells for the Coming Clean Energy Revolution.*

Participant: Domenico Pacifici. PI: Nitin Padture (Brown University), Co-PI: Jinsong Huang.

Award amount: \$4,000,000. Total period covered: 08/01/15–07/31/19.

2015–2016 Brown University Seed Award, *Nanoimprinted Nanowire Solar Cells.*

Co-PI: Domenico Pacifici. PI: Alexander Zaslavsky.

Award amount: \$60,000. Total period covered: 06/01/15–05/30/16.

2012–2016 NSF-CBET, *Multispectral plasmonic interferometry: a new tool for high-throughput, real-time detection of cytokines.*

PI: Domenico Pacifici. Co-PI: G. Tayhas R. Palmore.

Award amount: \$593,999. Total period covered: 03/01/12–03/01/16.

2012–2016 NSF-DMR, *Germanium nanostructures for efficient silicon-compatible optoelectronics.*

PI: Domenico Pacifici. Co-PI: Alexander Zaslavsky.

Award amount: \$400,000. Total period covered: 06/01/12–06/01/16.

2013–2015 JDRF (Juvenile Diabetes Research Foundation), *Plasmonic Interferometry: A New Tool for Real-Time Detection of Insulin.*

Co-PI: Domenico Pacifici. PI: G. Tayhas R. Palmore.

Award amount: \$1,000,000. Total period covered: 06/01/13–05/31/15.

2014–2016 Seed Award, *Multispectral Photoplethysmography for 3D Imaging and Quantitative Assessment of Blood Flow and Oxygen Content in Bone.*

PI: Domenico Pacifici. Co-PI: Roy Aaron.

Award amount: \$80,000. Total period covered: 06/01/14–05/30/16.

2013–2015 Seed Award, *Solar Power By Optical Frequency Rectification With Plasmonic Concentrators Coupled to Junctions of Doped Mott Insulators.*

Co-PI: Domenico Pacifici, Gang Xiao, Vladan Mlinar. PI: Brad Marston.

Award amount: \$80,000. Total period covered: 07/01/13–06/30/15.

2012 ONR, *2012 Lester Eastman Conference (LEC) on High Performance Devices held at Brown University 7 – 9 August 2012*

PI: Domenico Pacifici.

Award amount: \$19,999.90. Total period covered: 07/15/12–06/21/13.

2011 FOUNDATION BLANCEFLOR BONCOMPAGNI-LUDOVISI AWARD, Stockholm, Sweden.

PI: Salvatore Cosentino (Visiting Student in Pacifici's Group).

Award amount: SEK75,000 (~\$10,000). Total period covered: 09/01/11–04/30/12.

2011-2012 DORIS M. AND NORMAN T. HALPIN PRIZE FOR INTERDISCIPLINARY SENIOR CAPSTONE PROJECTS

Co-PI: Domenico Pacifici. PI: Christian Franck. Award recipient: Anastassia Astafieva

Award amount: \$750 student prize; \$2,500 research fund. Total period covered: 10/14/11–5/01/12.

2010 SALOMON AWARD, Brown University, *High-throughput, polychromatic, compact interferometric sensor array for label-free detection of chemical and biological analytes.*

PI: Domenico Pacifici.

Award amount: \$15,000. Total period covered: 01/19/10–06/30/11.

C. PROPOSALS SUBMITTED

2026-2032 NSF MRSEC, Center for Interacting Materials (CIM), PI: Yue Qi, \$18,000,000, Member:

Domenico Pacifici, *IRG-1: Programmable Quantum Light Sources from Low-Dimensional Superlattice.*

Contributor to shared-facilities planning and infrastructure strategy.

2026–2032 NSF, QLCI Preliminary Proposal - Institute for Complex Quantum Systems, PI: Vesna

Mitrovic, \$38,394,390. Participant: Domenico Pacifici.

2023–2026 NSF-DMR, Collaborative Research: CMOS+X: Hybrid Integration of Ge Quantum Dot Broadband Photodetectors with Low-Power Mixed-Mode CMOS SoC.

PI: Domenico Pacifici. Co-PIs: A. Zaslavsky (Brown University), M. Donato (Tuft University).

Award amount: \$970k [\$508,546 (Brown U.) + \$461,663 (Tuft U.)]. Total period covered: 06/01/23–05/31/26.

2017–2021 NSF-EFRI NewLAW Preproposal, Broken Reciprocity and Rectification in Topological materials with Strong Spin Orbit Coupling and in Plasmonic Metamaterials.

Co-PI: Domenico Pacifici. PI: V. Mitrovic (Physics). Co-PIs: Brad Marston, Gang Xiao (Physics).

Award amount: \$1,980,129. Total period covered: 09/01/17–08/31/21.

2017–2021 NSF-CBET, Tunable-Coherence Plasmonic Interferometry for High-Sensitivity Optical Biosensing.

PI: Domenico Pacifici.

Award amount: \$299,998. Total period covered: 09/01/18–08/31/21.

2017–2021 NSF-DMR, Germanium Quantum Dots for High-Speed, High-Gain Visible and Near-Infrared Photodetection.

PI: Domenico Pacifici. Co-PI: A. Zaslavsky.

Award amount: \$382,048. Total period covered: 09/01/18–08/31/21.

6. SERVICE

A. TO THE UNIVERSITY

- Member and Shared Facilities Lead Contributor, NSF MRSEC Center for Interacting Materials (CIM) Proposal (2026–2032): Led coordination of nanofabrication and characterization shared-facilities

planning across IRGs, including instrumentation strategy, facility integration, and facilities documentation central to the proposed center operations.

- Contributing Faculty Member (Designated Rhode Island institutional representative), Vanderbilt University–led National Network for Microelectronics Education (NNME–AMPS) Proposal (2025): Contributed nanofabrication infrastructure and workforce-training expertise as part of a nationally coordinated semiconductor education initiative spanning partners across all 50 states.
- Director, Brown University Nanofabrication Central Facility (NCF) (2016–2026): facility operations, safety oversight, user training, and stewardship of major instrumentation acquisitions (CRF awards; NSF MRI maskless lithography). Provided full operational oversight of the NCF, including infrastructure acquisition (~\$1M in competitive equipment funding secured), safety compliance, hazardous process management, tool maintenance coordination, supply chain management, emergency response coordination with Facilities Management and EHS, chemical inventory control, gas systems management, and direct technical training of graduate students, postdocs, and faculty users across campus.
- Administered an annual operating budget of approximately \$312,000 and oversaw diversified funding sources (grant, departmental, etc.).
- Supported ~60 active internal cleanroom users annually and enabled research across ~20 PI-led laboratories.
- Directly trained and supported dozens of users annually across Engineering, Physics, Chemistry, and related departments; enabled multi-million-dollar externally funded research programs through safe, reliable facility operations.
- In FY25, the NCF supported approximately 1,500+ logged cleanroom sessions, including ~1,000 major-instrument runs and 500+ cleanroom-only/observation entries. These sessions required scheduling, training, compliance oversight, troubleshooting, and recovery from tool faults—work that intensified during the staffing shortfall.
- Brown Space Engineering, Co-Advisor, Experimental characterization of nanosatellite solar panels.
- Freshman (~7 students/year) and Sophomore (~7 students/year) Student Advisor.
- Seed Grant Reviewer.
- Committee Member, Search for new EMSTL Program Director (2018).
- Committee Member, Development of New Website for the School of Engineering, Brown University (2009-2011)
- Committee Member, Proposal for a new Institute for Energy Science, Brown University, Proposal Co-author (2009-2011)
- Proposal reviewer, School of Engineering, Brown University (2010).
- Instructor, Nanoscale Fabrication and Characterization Workshops, Brown University Microelectronics and Electron Microscopy Facilities, March-April 2010, Providence, RI (Organizer: Prof. R. Zia, Instructors: Prof. D. Pacifici, Prof. R. Zia, Eng. M. Jibitsky, Eng. A. McCormick)
- Graduate Research Application Screening, Brown University, School of Engineering.
- Organizer, “Electronic and Photonics” seminar series, Brown University, School of Engineering (2009-2011)
- Graduate Students Preliminary Examination, Participant. (2009-present)
- Developed a new course, “The Physics of Solar Cells,” at the undergraduate and graduate levels.
- Developed a new course, based on the concepts of “flipped teaching” and “learning by teaching”, titled “Coherence of Light in Nano-Optics and Plasmonics,” at the undergraduate and graduate levels.
- Revamped a junior-level course “Design and Fabrication of Semiconductor Devices” with focus on semiconductor solar cell fabrication.
- Revamped a graduate-level course “Solid State Quantum and Optoelectronics” with focus on non-linear and quantum optics.

- Member and contributor, "Science Friday" meetings, STEM faculty group co-sponsored by the Sheridan Center for Teaching and Learning and the Science Center at Brown University.
- Run for the Faculty Executive Committee (FEC), junior faculty slate (2010)
- Participated in an innovative Technology Venture Office panel titled "A TVO Panel on Positioning an Entrepreneur for Success!" Played the role of an inventor discussing patenting/licensing /commercialization issues with a lawyer, an entrepreneur, and an investor. (Panel organized by Prof. Jason Harry and Heidi Meisenkothen).
- Honors Thesis Reader.

B. TO THE PROFESSION

- International Program Committee Member, 12th International Conference on Photonics, Optics and Laser Technology" - PHOTOPTICS 2024, Rome (Italy), February 21-23, 2024.
- Organizing Committee Member, e-MRS Conference, Symposium P, entitled "Dielectric nanocomposites for energy, environment and health: from fundamental to devices," Strasbourg (France), May 27-31, 2019.
- Organizing Committee Member, e-MRS Conference, Symposium R, entitled "Nanoparticles in dielectric matrix: from synthesis to device applications for photonics, electronics and bio sensing," Strasbourg (France), May 22-26, 2017.
- Organizing Committee Member, Joint Fall Meeting of the New England Sections of the APS and the AAPT, Nanobiophysics in the 21st Century, October 2010, Brown University.
- Program Committee Member, Photonics and Phononic Crystal Materials and Devices, OPTO SPIE Photonics West, January 2009, 2010, 2011, 2012.
- International Program Committee Member, IASTED International Conference on Solar Energy (SOE 2010, 2011), Banff, Alberta, Canada (2010, 2011).
- Local Arrangements Chair, IEEE Biennial Lester Eastman Conference on High Performance Devices, to be held at Brown University in August 2012.
- Reviewer, Pilot Funding for New Research (Pfund) (2009).
- Reviewer, Science Center programs of the U.S. Department of State, U.S. Civilian Research and Development Foundation (CRDF) (2010).
- Reviewer, NSF panel evaluating photonic proposals submitted to the ECCS Division (2011-2012).
- Reviewer, NSF panel evaluating proposals submitted to the DMR Division (2012).
- Reviewer, DOE Office of Science Graduate Fellowship (SCGF) Program, 2012.
- Peer Reviewer for the following journals: Reviews of Modern Physics, Nano Letters, Nature Communications, ACS Applied Materials & Interfaces, Physical Review B, Optics Express, Applied Physics Letters, Optics Letters, ACS Photonics, Physical Review Applied, Nature Photonics, Physical Review Letters, Applied Optics, Journal of the Optical Society of America, Solid State Electronics, Journal of Applied Physics, Light: Science & Applications.
- External reviewer for NIST, Washington Editorial Review Board (WERB).
- External reviewer for Science Foundation Ireland (SFI) President of Ireland Future Research Leaders programme.
- Organized hands-on workshops in the broader field of Nanoscale Fabrication and Characterization Methods.

C. TO THE COMMUNITY

- Speaker, Engineers Week 2010, Brown University, Talk on "Engineering of Photography" (February 2010). Showcased photographs and personal point of view in photography.
- Teaching outreach: Presented talks on "The Power of The Sun" (with solar cell demonstrations) at the Martin Luther King (MLK) and Vartan Gregorian Elementary Science Conferences, organized within the GK-12 program at Brown University. Served as judge for the Science fair at MLK.

- Organizer of guided tours and solar cell demos for elementary school students.
- Lab Tour Training for Staff Members of the School of Engineering (2013).

7. ACADEMIC HONORS & AWARDS

SIGMA-XI, THE SCIENTIFIC RESEARCH HONOR SOCIETY

Full Membership

2020

In recognition of his scholarly achievements and contributions to the advancement of knowledge in his research field.

BROWN UNIVERSITY

Research Seed Funding

2014

Created to help faculty compete more successfully for large-scale, interdisciplinary, multi-investigator grants.

BROWN UNIVERSITY

Henry Merritt Wriston Fellowship

2013

"For his contributions to excellence in teaching and for the devotion to the intellectual development of both graduate and undergraduate students."

BROWN UNIVERSITY

Research Seed Funding

2013

Created to help faculty compete more successfully for large-scale, interdisciplinary, multi-investigator grants.

BROWN UNIVERSITY'S SCHOOL OF ENGINEERING AND TAU BETA PI

Dedicated Faculty Award

2012

"For enriching the undergraduate education experience. Selected for demonstrating superior teaching, dedication, and involvement both in and out of the classroom."

BROWN UNIVERSITY

Richard B. Salomon Faculty Research Award

2010

Established to support excellence in scholarly work by providing funding for selected faculty research projects deemed to be of exceptional merit.

STMICROELECTRONICS, Catania, Italy

Best Ph.D. Thesis Award

2004

Award for the best Ph.D. thesis performed in collaboration with industry. STMicroelectronics is a global leader in developing and delivering system-on-chip and semiconductor solutions across the spectrum of microelectronics.

ACCADEMIA GIOENIA, Catania, Italy

Best Master of Science Thesis Award

2001

The Accademia Gioenia is a research society founded in 1824 that includes Italian scientists, like Nobel laureate Rita Levi Montalcini, as honorary members. The academy promotes the studies of natural phenomena in order to contribute to the progress of science.

RESEARCH DISTINCTIONS

- Contributed to shared-facilities planning for the NSF MRSEC CIM proposal (2026–2032), supporting institutional research-infrastructure strategy and national research competitiveness.
- Article featured as “Cover story” in NanoPhotonics, vol. 3 (2014).
- Article selected as “Editor’s Pick”, Applied Physics Letters (2018); press coverage <https://aip.scitation.org/doi/10.1063/1.5078621>.
- Research featured in Nature Photonics, “Research Highlights,” vol. 3, pp. 4-5 (2009).
- Research featured in Nature Photonics, “News & Views,” vol. 1, p. 368 (2007).
- Research featured in Nature Physics, “Research Highlights,” vol. 3, p. 443 (2007).
- Article selected by Nature Photonics for the “First Year (2007) Highlights,” (2007).
- Article featured as “Cover story” in Nature Photonics, vol. 1, N. 2 (2007).
- Research featured in Phys.Org, “Research demonstrates method to alter coherence of light” (18/10/2017).
- Research featured in Phys.Org, “Researchers make better sense of incoherent light” (16/9/2016).
- Research featured in Phys.Org, “Advance could aid development of nanoscale biosensors” (16/2/2016).
- Research featured in Phys.Org, “Glucose monitoring for diabetes made easy with a blood-less method” (16/6/2014).
- Research featured in Phys.Org, “Progress on detecting glucose levels in saliva” (3/6/2014).
- Research featured in Phys.Org, “Biochip measures glucose in saliva, not blood” (23/1/2012).
- In a team effort with two Professors at the Rhode Island School of Design (RISD), i.e. Prof. Laura Briggs and Prof. Jonathan Knowles, Prof. Pacifici proposed developing, manufacturing, and marketing Solar Sail, an affordable, easily replicable, textile photovoltaic system. The Brown-RISD team was among five finalists to be recognized by the 2013 Rhode Island Foundation Innovation Fellows selection committee for the projects' merit and commercialization potential.
- Honorable Mention for Tech Innovation from the National Collegiate Inventors and Innovators Alliance (NCIIA) for the SPIT'nIT technology (Surface Plasmon Interferometric Technology for non-Invasive Testing of glucose in saliva), May 2012.
- Research featured in Nature Photonics, “Research Highlights,” vol. 6, p. 139 (2012).
- Research featured in “News” ISSNAF website (Italian Scientists and Scholars of North America Foundation), 2012. Title: “Test for diabetics.”
- Paper selected for the March 28, 2011 issue of Virtual Journal of Nanoscale Science & Technology - “Plasmonic concentrators for enhanced light absorption in ultrathin film organic photovoltaics,” published in Applied Physics Letters 98, 113112 (2011).
- Media coverage: The Brown Daily Herald (8/11/2017), Innovation (25/1/2012), Yahoo!News IANS (4/6/2014), theEngineer (23/1/2012), ScienceNews Fisher Scientific (2/2/2012), LabMedica (18/6/2014), Science&Research (3/2/2012), BioanalysisZone Journal (2012), Qmed (2012), articolo “Blutzucker” su Wikipedia, Press Review for the Consulate General of Italy (Boston, 27/2/2012), School of Engineering News (3/6/2014), IEEE Spectrum (5/6/2014), IEEE Spectrum (7/3/2012), Laser Focus World (27/1/2012), medGadget (20/6/2014), BioOpticsWorld (17/6/2014), NSF Multimedia Gallery (2012), Photonics.com (3/2012), Consultant360 (18/7/2014), iMedicalApps (27/1/2012), cnet (20/1/2012), The Smithsonian/NASA database (2012), NanoWiki (25/1/2012), Corriere.it (27/2/2012), Human Saliva Research (1/2012), netdoctor (4/6/2014), ScienceDaily (16/6/2014), ChemistryViews (28/6/2014), ScienceDaily (23/1/2012), The Indian Express (4/6/2014), gizmag (18/6/2014), nanowerk (3/6/2014), Boston Business Journal (6/2/2012), Photonics.com (24/1/2012), News from Brown (20/1/2012), Today's Medical Developments (9/3/2012), robaid (26/1/2012), International Business Times (28/1/2012), Associazione Giovani e Adulti con Diabete (29/2/2012), Pour Femme (29/2/2012), Quotidiano Sanità (24/1/2012), Reader's Digest (2/2012), Phys.Org (16/6/2014), Diabetes-kids.de (24/1/2012), ISSNAF (16/6/2014).
- Wikipedia articles: “Plasmonic circuitry”, “Plasmonic metamaterial”, “Plasmonic solar cell”, “Plasmonische Solarzelle”, “Blutzucker”.

8. TEACHING

Teaching Summary (Cumulative Enrollment):

- Large-enrollment foundational undergraduate gateway courses:
ENGN 0030 ("Introduction to Engineering") and ENGN 0510 ("Electricity & Magnetism"):
– **~1,213+ students taught cumulatively.**
- Upper-level undergraduate and graduate courses (ENGN 1680, ENGN 1931A, ENGN 2620, ENGN 2912Q, ENGN/PHYS 1790/2790, special topics):
– **~260+ additional students taught.**

Total cumulative classroom instruction: **~1,470+ students.**

Taught large-enrollment foundational gateway courses (ENGN 0030; ENGN 0510) serving first- and second-year engineering students for a total of **1,213 undergraduate students**. In addition, taught advanced undergraduate and graduate courses, seminars, and research courses with a combined enrollment of approximately **260 students**.

Table Summary:

#	Course Name	Level	Code	A.Y.
1	Introduction to Engineering	Undergrad	ENGN 0030	2022/2023 2021/2022 2020/2021 2019/2020 2018/2019
2	Design and Fabrication of Semiconductor Devices	Undergrad	ENGN 1680	2016/2017 2014/2015 2012/2013 2010/2011
3	Photovoltaics Engineering	Undergrad	ENGN 1931A	2025/2026 2023/2024 2015/2016
4	Electricity and Magnetism	Undergrad	ENGN 0510	2012/2013 2011/2012 2010/2011 2009/2010
5	The Physics of Solar Cells	Undergrad	ENGN 1931A	2011/2012 2009/2010
6	Solid State Quantum and Opto-electronics	Grad	ENGN 2620	2021/2022 2018/2019 2016/2017
7	Coherence of Light in Nano-Optics and Plasmonics	Grad	ENGN 2912Q	2022/2023 2019/2020 2015/2016
8	Quantum Optics	Undergrad/ Grad/Master's	ENGN/PHYS 1790/2790	2023/2024 2026/2027

Detailed Description:

ENGN 2980: Special Projects, Reading, Research and Design Enrollment: 1 Graduate Students (Lorna Muturi).	Spring 2026
ENGN 1931A: Photovoltaics Engineering Enrollment: 13 Students.	Fall 2025
ENGN/PHYS 1790/2790: Quantum Optics Enrollment: 38 (33 Students + 3 Auditors + 2 Observers).	Spring 2024
ENGN 1931A: Photovoltaics Engineering Enrollment: 10 Students.	Fall 2023
ENGN 2912Q: Coherence of Light in Nano-Optics and Plasmonics Enrollment: 4 Students.	Spring 2023
ENGN 0030: Introduction to Engineering Enrollment: 163 Students.	Fall 2022
ENGN 2620: Solid State Quantum and Optoelectronics Enrollment: 4 (3 Students + 1 Auditor/faculty member).	Spring 2022
ENGN 0030: Introduction to Engineering Enrollment: 143 Students.	Fall 2021
ENGN 0030: Introduction to Engineering Enrollment: 109 Students.	Spring 2021
ENGN 2912Q: Coherence of Light in Nano-Optics and Plasmonics Enrollment: 6 Students.	Spring 2020
ENGN 0030: Introduction to Engineering Enrollment: 193 Students.	Fall 2019
ENGN 0030: Introduction to Engineering Enrollment: 160 Students.	Fall 2018
ENGN 2620: Solid State Quantum and Optoelectronics Enrollment: 10 (6 Students + 4 Auditors).	Fall 2018
ENGN 1680: Design and Fabrication of Semiconductor Devices Enrollment: 8 (6 Students + 2 Auditors).	Spring 2017
ENGN 2620: Solid State Quantum and Optoelectronics Enrollment: 11 (6 Students + 5 Auditors).	Fall 2016
ENGN 1931A: Photovoltaics Engineering Enrollment: 13 Students.	Spring 2016

ENGN 2912Q: Coherence of Light in Nano-Optics and Plasmonics

Fall 2015

Enrollment: 6 Students.

ENGN 2980: Special Projects, Reading, Research and Design

Fall 2015

Enrollment: 2 Graduate Students (Jing Feng, Stylianos Siontas),
1 Undergraduate Student (Lila V. Rodgers).**ENGN 1680: Design and Fabrication of Semiconductor Devices**

Spring 2015

Enrollment: 6 Students.

ENGN 2980: Special Projects, Reading, Research and Design

Spring 2014

Enrollment: 2 Graduate/1 Master Students (Jing Feng, Patrick Flanigan, Tianyi Shen).

ENGN 1970: Independent Studies in Engineering

Fall 2014

Enrollment: 1 Undergraduate Student (Oussama Fadil).

ENGN 2980: Special Projects, Reading, Research and Design

Fall 2014

Enrollment: 2 Graduate Students (Jing Feng, Patrick Flanigan).

PHYS 2980: Research in Physics

Fall 2014

Enrollment: 1 Graduate Student (Pei Liu).

ENGN 2980: Special Projects, Reading, Research and Design

Spring 2014

Enrollment: 2 Graduate Students (Jing Feng, Patrick Flanigan).

PHYS 2981: Research in Physics

Spring 2014

Enrollment: 1 Graduate Student (Pei Liu).

ENGN 2980: Special Projects, Reading, Research and Design

Fall 2013

Enrollment: 2 Graduate (Jing Feng, Patrick Flanigan).

PHYS 2980: Research in Physics

Fall 2013

Enrollment: 1 Graduate Student (Pei Liu).

Graduate Student Level Seminars on "The Physics of Solar Cells"

Fall 2013

Developed with the support of the Wriston Fellowship. Enrollment: 10 Students.

ENGN 1680: Design and Fabrication of Semiconductor Devices

Spring 2013

Enrollment: 9 Students.

ENGN 2980: Special Projects, Reading, Research and Design

Spring 2013

Enrollment: 2 Graduate Students (Jing Feng, Patrick Flanigan).

PHYS 2981: Research in Physics

Spring 2013

Enrollment: 1 Graduate Student (Pei Liu).

ENGN 0510: Electricity and Magnetism

Fall 2012

Enrollment: 115 Students.

ENGN 2980: Special Projects, Reading, Research and Design

Fall 2012

Enrollment: 2 Graduate Students (Jing Feng, Patrick Flanigan).

PHYS 2980: Research in Physics

Fall 2012

Enrollment: 1 Graduate Student (Pei Liu).

ENGN 1931A: The Physics of Solar Cells

Spring 2012

Enrollment: 20 Students.

ENGN 2980: Special Projects, Reading, Research and Design

Spring 2012

Enrollment: 3 Graduate Students (Jing Feng, Patrick Flanigan, Pei Liu).

ENGN 0510: Electricity and Magnetism

Fall 2011

Enrollment: 126 Students.

ENGN 1970: Independent Studies in Engineering

Fall 2011

Enrollment: 1 Undergraduate Student (Kaan Gunay).

ENGN 2980: Special Projects, Reading, Research and Design

Fall 2011

Enrollment: 2 Graduate Students (Jing Feng, Patrick Flanigan).

PHYS 2980: Research in Physics

Fall 2011

Enrollment: 2 Graduate Students (Pei Liu, Zhen Ye).

ENGN 1680: Design and Fabrication of Semiconductor Devices

Spring 2011

Enrollment: 15 Students.

ENGN 1970: Independent Studies in Engineering

Spring 2011

Enrollment: 5 Undergraduate Students (Tim Dingman, Kaan Gunay, Vihang Mehta, Aminy Ostfeld, Natalie Serrino).

ENGN 2980: Special Projects, Reading, Research and Design

Spring 2011

Enrollment: 1 Graduate Student (Jing Feng).

PHYS 2980: Research in Physics

Spring 2011

Enrollment: 2 Graduate Students (Pei Liu, Zhen Ye).

ENGN 0510: Electricity and Magnetism

Fall 2010

Enrollment: 88 Students.

ENGN 2980: Special Projects, Reading, Research and Design

Fall 2010

Enrollment: 1 Graduate Student (Jing Feng).

PHYS 2980: Research in Physics

Fall 2010

Enrollment: 1 Graduate Student (Pei Liu).

ENGN 1970: Independent Studies in Engineering

Fall 2010

Enrollment: 2 Undergraduate Students (Timothy Dingman, Vihang Mehta).

ENGN 1931A: The Physics of Solar Cells

Spring 2010

Enrollment: 13 Students.

ENGN 0510: Electricity and Magnetism

Fall 2009

Enrollment: 116 Students.

Advising:

The following graduate students have completed their Ph.D. requirements and have graduated:

1. Tianyi Shen, Ph.D. in Engineering (sole advisor, 2015-2020, Graduated in 2020)
2. Stylianos Siontas, Ph.D. in Engineering (primary advisor, 2014-2018, co-advised with Prof. A. Zaslavsky, Graduated in 2018)
3. Jing Feng, Ph.D. in Engineering (sole advisor, 2010-2016, Graduated in 2016)
4. Pei Liu, Ph.D. in Physics (sole advisor, 2010-2015, Graduated in 2015)
5. Patrick Flanigan, Ph.D. in Electrical Engineering (sole advisor, 2011-2015, Graduated in 2015)
6. Vince Siu, Ph.D. in Biomedical Engineering, co-advised with Prof. G. Tayhas R. Palmore (2010-2013, Graduated in 2013)

One student (Jing Feng, sole advisor) was enrolled in the *Open Graduate Education Program* at Brown (graduated in 2016).

Post-Graduate Research Advisor for:

1. Dongfang Li, Brown Ph.D. in Physics (2014-2018)

Graduate Research Advisor for:

1. Lorna Muturi, Ph.D. in Engineering (2025-present)
2. Ryan Weiss, Ph.D. in Physics (2021-2025), co-advised with Prof. A. Zaslavsky.
3. Rachel Odessey, Ph.D. in Engineering (2019-2021)
4. Sue Shi, Ph.D. in Engineering (2020-2021), primary advisor (co-advisor: Prof. A. Zaslavsky)
5. Tianyi Shen, Ph.D. in Engineering (2016-2020)
6. Stylianos Siontas, Ph.D. in Engineering (2014-2018), primary advisor (co-advisor: Prof. A. Zaslavsky)
7. Jing Feng, Ph.D. in Electrical Engineering (2010-2016)
8. Zhen Ye, Ph.D. in Physics (Jan.-Dec. 2011)
9. Peng Zhang, Ph.D. in Physics, co-advised with Prof. Alexander Zaslavsky (2012-2015)
10. Son T. Le, Ph.D. in Physics, co-advised with Prof. Alexander Zaslavsky (2010-2012)
11. Pei Liu, Ph.D. in Physics (2010-2015, Graduated in 2015)
12. Patrick Flanigan, Ph.D. in Electrical Engineering (2011-2015, Graduated in 2015)
13. Vince Siu, Ph.D. in Biomedical Engineering, co-advised with Prof. G. Tayhas R. Palmore (2010-2013, Graduated in 2013)

Master's Student Advisor for:

1. Ritika Ravichandran (2025-present)
2. Qiwen Tan (2018-2019)
3. Weishi Yuan (2018-2019)
4. Dingdong Li (2016-2018)
5. Tianyi Shen (2015-2016)

Undergraduate Senior Honors Thesis Advisor for:

1. Nop Toemtrisna, Electrical Engineering (2023-2024)
2. Alec Roelke, Computer Engineering (2009-2012)
3. Aminy Ostfeld, Electrical Engineering (2009-2011)
4. Tim Dingman, Engineering-Physics (2010-2011)
5. Kaan Gunay, Mechanical Engineering (2011-2013)

6. Drew Morrill (2012-2013) "Leallyn B. Clapp Prize for Outstanding Senior Honors Thesis in Chemical Physics"
7. Lila Rodgers, Electrical Engineering (2015-2016)
8. Andrew Stearns, Engineering/Physics (2016-2017)
9. Sophia Gluskin-Braun, Electrical Engineering (2015-2017)
10. Henry Wyatt Sharpe, Electrical Engineering (2016-2017)
11. Sartaj Aujla, Electrical Engineering (2016-2017)

Undergraduate Research Advisor for:

1. Luca Salerno Uriarte
2. Sofia Tazi
3. Lingwen Zhang
4. Nop Toemtrisna
5. Sartaj Aujla
6. Henry Wyatt Sharpe
7. Andrew Stearns
8. Jessica Cheng
9. Giorgio Savini Zangrandi
10. Lila Rodgers
11. Sophia Gluskin-Braun
12. Ramiro Porras
13. Kevin Argueta
14. Drew Morrill
15. Abigail Plummer
16. Emily Toomey
17. Adam Siegel
18. Oussama Fadil (capstone project)
19. Matthew Breuer
20. Stephen Palazola
21. Tim Dingman
22. Kaan Gunay
23. Alec Roelke
24. Vihang Mehta
25. Natalie Serrino
26. Aminy Ostfeld

Visiting Graduate Student Advisor for:

1. Salvatore Cosentino (University of Catania, Summer 2010, Fall 2011, Spring 2012)

Visiting Undergraduate Student Advisor for:

1. Clayton Inman (Case Western University, Summer 2015)

Undergraduate Teaching and Research Awards (UTRA):

1. Giorgio Savini Zangrandi, 2016 Summer UTRA
2. Sophia Gluskin-Braun, 2015 Fall UTRA, 2016 Summer UTRA

3. Ramiro Porras, 2015 Fall UTRA
4. Kevin Argueta, 2015 Summer UTRA
5. Abigail Plummer, 2012 Summer UTRA
6. Kaan Gunay, 2012 Summer UTRA
7. Alec Roelke, 2011 Summer UTRA
8. Stephen Palazola, 2011 Summer UTRA
9. Aminy Ostfeld, 2010 Summer UTRA
10. Natalie Serrino, 2010 Fall UTRA

Other Undergraduate Awards:

1. Aminy Ostfeld, 2010 Tau Beta Pi Scholarship
2. Anastassia Astafieva, 2011–2012 Doris M. and Norman T. Halpin Prize for Interdisciplinary Senior Capstone Projects
3. Kaan Gunay, recipient of the 2012 Maurice R. Seguin Winter Stipend
4. Drew Morrill, 2012-2013 Leallyn B. Clapp Prize for Outstanding Senior Honors Thesis in Chemical Physics
5. Abigail Plummer, winner of the 2014–2015 Astronaut Scholarship Foundation's Scholarship

Host for Visiting Scientist:

1. Robert J. Walters, Integrated Plasmonics Corporation (2012)

Advisor for the following high school students who performed research in the Pacifici Research Group:

1. Michael Zaslavsky (Summer internship, 2012)
2. Clayton Inman (Summer internship, 2012, 2013)
3. Aurora White (Summer internship, 2014)
4. Anjaney Srivastav (Summer internship, 2015)

Academic Advisor for first-year (~7/year) and sophomore (~7/year) students.

Concentration Advisor for Ofek Weitzman (Independent Concentration, "Renewable Energy Innovation").

Thesis Advisor:

Ph.D. Theses:

1. Jing Feng, Ph.D. in Electrical Engineering (2010-2016)
 - a. Title: "*Plasmonic Interferometry: A New Approach toward Highly-Sensitive Multispectral Biochemical Detection*" (2016)
2. Pei Liu, Ph.D. in Physics (2010-2015)
 - a. Title: "*Amorphous Germanium Nanostructures: Optical Characterization and Applications for Improved Photodetector Performance*" (2015)
3. Patrick Flanagan, Ph.D. in Electrical Engineering (2011-2015)
 - a. Title: "*Plasmonic Interferometry in Systems with Single or Multiple Scatterers: Experiments, Simulations, and Applications*" (2015)
4. Vince Siu, Ph.D. in Biomedical Engineering (2010-2013)
 - a. Title: "*Development of Electrochemical, Microbial and Optical Methods at the Nano-Scale for High-Throughput Biochemical Sensing*" (2013)
5. Stylianos Siontas, Ph.D. in Engineering (2014-2018)

- a. Title: "*Silicon/Germanium and Perovskite Optoelectronic Devices for Photodetection and Photovoltaics*" (2018)
- 6. Tianyi Shen, Ph.D. in Engineering (2015-2020)
 - a. Title: "*Plasmonic Nanostructures for Perovskite Photovoltaics, Structural Coloration and Optical Coherence Modulation*" (2020)

Master's Theses:

- 7. Qiwen Tan (2019-2020)
 - a. Title: "Plasmonic nanostructure arrays for absorption enhancement in MAPbI₃ perovskite solar cells" (2020)
- 8. Dingdong Li (2016-2018)
 - a. Title: "*Human TREM2 Detection based on Functionalized Plasmonic Interferometry Biosensor*" (2018)
- 9. Tianyi Shen (2015-2016)
 - a. Title: "*FDTD Simulations on Plasmonic Enhanced Perovskite Solar Cells and Anodic Aluminum Oxide Physical Coloration*" (2016)

Honors Theses:

- 10. Alec Roelke, Computer Engineering (2009-2012)
 - a. Title: "*High-Throughput, Nanoscale Plasmonic Interferometers for Biochemical Sensing*" (2012).
- 11. Aminy Ostfeld, Electrical Engineering (2009-2011)
 - a. Title: "*Plasmonic Concentrators for High-Efficiency Thin-Film Organic Photovoltaics*" (2011).
- 12. Tim Dingman, Engineering-Physics (2010-2011)
 - a. Title: "*Amorphous Silicon Solar Cell with Plasmonic Backing*" (2011)
- 13. Kaan Gunay, Mechanical Engineering (2011-2013)
 - a. Title: "*Universal Behavior and Polarization Dependence of Light Transmission through Individual Nanoapertures in Metal Films*" (2013)
- 14. Drew Morrill (2012-2013)
 - a. Title: "*Plasmonic Interferometry and the Measurement of Optical Coherence*" (2013)
- 15. Lila Rodgers, Electrical Engineering (2015-2016)
 - a. Title: "*A Fourier-Transform Spectrometer based on Plasmonic Interferometry*" (2016)
- 16. Andrew Stearns, Engineering/Physics (2016-2017)
 - a. Title: "*Controlling the Degree of Spatial Coherence with Plasmonic Nano-Apertures and Hole Arrays*" (2017)
- 17. Sophia Gluskin-Braun, Electrical Engineering (2015-2017)
 - a. Title: "*Nanoimprint Lithography for High Efficiency Perovskite Solar Cells*" (2017)
- 18. Henry Wyatt Sharpe, Electrical Engineering (2016-2017)
 - a. Title: "*Optical and Electrical Simulation of a Double-Polished, Thin-Film Silicon PERC Solar Cell with Front-Surface Silver Nanodisks*" (2017)
- 19. Sartaj Aujla, Electrical Engineering (2016-2017)
 - a. Title: "*Near Infrared Optical and Electrical Characterization of High Efficiency Crystalline Ge-Quantum Dots/SiO₂/Si MOS Photodetectors*" (2017)
- 20. Nop Toemtrisna, Electrical Engineering (2023-2024)
 - a. Title: "*CMOS-Compatible Ge Quantum Dot/Well Photodetector*" (2024)