

DR. NICOLAS LARGE
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Theoretical and computational nanophotonics and plasmonics.

Electrodynamic modeling of the optical and photothermal properties of semiconductor (excitonic), metallic (plasmonic), and hybrid (plexcitonic, plasmonic, magneto-plasmonic, plasmonic-biomolecular, plasmonic-photonic) nanomaterials.

Education

2023 (expected) Habilitation, Paul Sabatier University of Toulouse, France
2011 **Ph.D., Nanophysics** (*summa cum laude*), Paul Sabatier University of Toulouse, France
2011 **Ph.D., Physics of Nanostructures and Advanced Materials**, The University of the Basque Country (EHU/UPV), San Sebastián, Spain
2007 M.S. (*magna cum laude*), Physics, Paul Sabatier University of Toulouse, France
2005 B.S., Physics, Paul Sabatier University of Toulouse (UPS), France

Positions

2022-present **Associate Professor**, Department of Physics and Astronomy, The University of Texas at San Antonio
Spring 2022 NanoX Visiting Professor, Center for Material Elaboration and Structural Studies (CNRS), Paul Sabatier University of Toulouse, Toulouse, France
2016-2022 Assistant Professor, Department of Physics and Astronomy, The University of Texas at San Antonio
2014-2016 Postdoctoral Fellow, Department of Chemistry, International Institute for Nanotechnology, Northwestern University, Evanston, IL
2012-2014 Postdoctoral Research Associate, Department of Electrical and Computer Engineering, Laboratory for Nanophotonics, Rice University, Houston, TX
2007-2011 Joint Doctoral Researcher, Center for Material Elaboration and Structural Studies (CNRS, Toulouse), Center for Material Physics & Donostia International Physics Center (CSIC & DIPC, San Sebastián)
Nov. 2009 Visiting Scholar, Institute of Materials Research and Engineering (A*STAR), National University of Singapore, Singapore
2005-2007 Graduate Research Assistant, Solid State Physics Laboratory, Toulouse

Fellowships, Honors, and Awards

2022 President Distinguished Achievement Award for *Advancing Globalization*, UTSA (\$2,000)
2021 NanoX Visiting Researcher Fellowship, NanoX, University of Toulouse (8,000€)
2012 C'Nano National Prize for best Doctoral Thesis in *Fundamental Research in Nanosciences* (500€)

2010-2011	Doctoral Fellowship (26,210€), Donostia International Physics Center Foundation
2007-2010	MESR Doctoral Fellowship (63,290€), French Ministry of Higher Education and Research
2009	ImagineNano Award (2,000€), Phantoms Foundation
2007	Excellence in Master Award (5,500€), French Ministry of Higher Education and Research

Grants

Active (3)

N. Large (PI), “*Acousto-Plasmonic Interaction for Unconventional Nanoscale Light Manipulation and Integrated High Accuracy Sensors*”, Office of Naval Research (ONR) | HBCU/MI, \$434,446, 7/1/2021 – 6/30/2024, N00014-21-1-2729.

N. Large (PI), Z. J. Tonzetich (Co-PI), “*CCI Phase I: NSF Center for Quantum Electrodynamics for Selective Transformations*”, subaward University of Rochester (T. Krauss (PI), National Science Foundation (NSF) – CCI, \$1,800,000, CHE-2124398), \$59,997, 9/1/2021 – 8/31/2024, SUB00000133-URFAOGR531226.

N. Large (PI), R.P. Vincent (Co-PI), “*HYMNE: unravel novel polaritonic states in hybrid metasurfaces and nanomaterials*”, FACE Foundation – Thomas Jefferson Fund, \$20,000, 9/1/2019 – 8/31/2023, TJF19_092

Completed (8)

K. Mayer (PI), **N. Large (Co-PI)**, N. Ornelas Soto (Co-PI), “*Nano-colloids of core-shell particles as a new approach for the optical sensing of contaminants of emerging concern*”, ConTex, \$70,000, 9/1/2020 – 8/31/2022.

N. Large (PI), A. Mlayah (Co-PI), “*Theoretical investigation of the optical and photothermal properties of plasmonic-based nanostructures*”, Embassy of France in the US – Chateaubriand Fellowship, \$12,000, 9/1/2019 – 8/31/2022.

N. Large (PI), A. Reyes Coronado (Co-PI), “*Theoretical Modeling of Magneto-Plasmonic Effects in Electrodynamic Calculations*”, American Physical Society (APS), \$2,000, 3/1/2019 – 2/28/2021.

N. Large (PI), A. Mlayah (Co-PI), “*Optical Properties of Plexcitonic Nanostructures*”, Embassy of France in the US – Chateaubriand Fellowship, \$12,000, 9/1/2020 – 12/31/2021.

K. Mayer (PI), **N. Large (Co-PI)**, A. Ponce Pedraza (Co-PI), K.L. Nash (Co-PI), L. Brancalion (Co-PI), “*Hybrid plasmonics at UTSA: Investigating plasmonic/magnetic and plasmonic/biomolecular systems*”, Army Research Office (ARO) – HBCU/MI, \$599,989, 9/30/2018 – 9/29/2021, W911NF-18-1-0439.

K. Mayer (PI), **N. Large (Co-PI)**, A. Ponce Pedraza (Co-PI), K.L. Nash (Co-PI), L. Brancalion (Co-PI), “*2021 HSAP/URAP Supplement: Hybrid Plasmonics at UTSA*”, Army Research Office (ARO) – HBCU/MI, \$22,500, 6/1/2021 – 8/31/2021.

K. Mayer (PI), **N. Large (Co-PI)**, A. Ponce Pedraza (Co-PI), K.L. Nash (Co-PI), L. Brancalion (Co-PI), “*HSAP/URAP Supplement: Hybrid Plasmonics at UTSA*”, Army Research Office (ARO) – HBCU/MI, \$22,500, 6/1/2020 – 8/31/2020.

N. Large (PI), “*Plasmonic-dielectric metamaterials for enhanced spectroscopy and controlled chemistry*”, subaward Northwestern University (R.P. Van Duyne (PI), Office of Naval Research (ONR) – NSSEFF, \$927,465, N00014-17-1-3024), \$36,531, 9/30/2017 – 9/29/2019, SP0042269-PROJ0011928.

Certifications

[Certificate in Effective College Instruction](#), Association of College and University Educators, 2021

This certificate is awarded for the completion of a 25-module course in effective teaching practices requiring the implementation of evidence-based instructional approaches. The credential is co-issued by the American Council on Education and distinguishes faculty for their commitment to educational excellence and student success.

[Microcredential in Inclusive Teaching for Equitable Learning](#), Association of College and University Educators, 2022

This microcredential, co-issued by the American Council on Education, is awarded for the completion of a 10-week course that provides instructors with proven strategies to create a more equitable and just learning environment.

Teaching

- 2016-present The University of Texas at San Antonio – Undergraduate & Graduate courses
- *Nanophotonics & Plasmonics* [PHY 4953 & 7603]
- *Electrodynamics* [PHY 3513]
- *Modern Physics* [PHY 2103]
- *Mathematical Physics* [PHY 2823 & 6503]
- *Independent Studies* [PHY 4913 & 6953]
- 2007-present Supervision and Mentoring of undergraduate and graduate students, visiting scholars, and postdoctoral researchers
- 2013 Rice University – Graduate course
- *Computational Electrodynamics and Nanophotonics* [PHYS 605]
- 2007-2008 National Polytechnic Institute of Toulouse – Undergraduate course
- *Geometrical and Wave Optics*

Professional Activities and Services

- 2018-present **Proposal Reviewer** for the Condensed Matter and Materials Theory (CMMT) program at the National Science Foundation (NSF) and the Frontier Science program at the National Council of Science and Technology of Mexico (CONACyT)
- 2009-present **Reviewer for:** Chemical Reviews, Nature Materials, ACS Nano, Nano Letters, Nature Communications, Scientific Reports, Nanoscale, ACS Photonics, Journal of Physical Chemistry, RSC Advances, Nanotechnology, Optics Express, Optics Letters, Applied Physics Letters, Journal of Optics, Journal of the Optical Society of America B
- 2017-2018 Chair, Physics & Astronomy Symposium, COS Research Conference, San Antonio, TX
- 2016 Organizer and session moderator, 13th International Conference Nanotek, Phoenix, AZ
- 2013 Session chair, ARO Workshop on Surface Plasmon and Catalysis, Houston, TX

Professional Memberships

- 2016-present Materials Research Society (MRS) – Member
- 2012-present The International Society for Optics and Photonics (SPIE) – Member
- 2011-present American Chemical Society (ACS) – Member & Reviewer
- 2008-present American Physics Society (APS) – Member
- 2011-2016 Optical Society of America (OSA) – Member & Reviewer
- 2011-2016 National Postdoctoral Association – Affiliate Member

Scientific Metrics

Publications: 45 published, 5 in preparation/submitted

International conferences: 37 talks

Citations/h-index: 4339/24 ([Google Scholar](#)), 3297/22 ([Web of Science](#)), 3504/23 ([Scopus](#))

Publications and Communications

Peer-reviewed articles (44)

1. *Optical properties of triangular gold nanoframes.*
M.M. Shahjamali, N. Zaree, A. Li, **N. Large**, M. Bosman, S.S. Venkataraman, V.N. Manoharan, C. Xue, and G.C. Schatz: *In preparation*
2. *Plasmonic excitations concentrate reactants in non-catalyst regions of the nano-plasmonic array for enhanced solar photocatalysis.*
G. Yan, M. Brinkman, N. Chiang, **N. Large**, W.-C. Shih, and T.-Y. Chen: *In preparation*
3. *Computational modeling of the electron energy-loss spectroscopy (EELS) of periodic silver nanoparticle arrays.*
R. Kraja and **N. Large**: *In preparation*
4. *Photoconductive control of higher-order localized surface plasmon modes in Au-Si-Au nanodisk stacks.*
V. Nooshnab and **N. Large**: *Submitted*
5. *Photonic band structure calculation of 3D finite nanostructured supercrystals.*
J.L. Montaño-Priede and **N. Large**: [Nanoscale Adv. 2022, 4, 4589-4596](#)
6. *Raman energy density in the context of acoustoplasmonics.*
J.L. Montaño-Priede, A. Mlayah, and **N. Large**: [Phys. Rev. B 2022, 106, 165425](#)
7. *Plasmonic heating effects in tip-enhanced Raman spectroscopy (TERS).*
J. Rigor, D. Kourouski, and **N. Large**: [J. Phys. Chem. C 2022, 126\(32\), 13986-13993](#)
8. *Computational analysis of drug free silver triangular nanoprism theranostic probe plasmonic behavior for in-situ tumor imaging and photothermal therapy.*
S. Mondal, J.L. Montaño-Priede, V.T. Nguyen, S. Park, J. Choi, V.H. Minh Doan, T.M. Thien Vo, T.H. Vo, **N. Large**, and J. Oh: [J. Adv. Res. 2022, 41, 23-38](#)
9. *Enhanced dual plasmonic photocatalysis through plasmon coupling in eccentric noble metal-nonstoichiometric copper chalcogenide hetero-nanostructures.*
M. Ivanchenko, V. Nooshnab, A.F. Myers, A.J. Evangelista, **N. Large**, and H. Jing: [Nano Res. 2022, 15, 1579](#)
10. *Magneto-plasmonic biocompatible nanorice.*
C.M. García-Rosas, L.A. Medina, P. Lopez, A. Reyes-Coronado, and **N. Large**: [J. Nanopart. Res. 2021, 23, 144](#)
11. *Underlying mechanisms of hot carrier-driven reactivity on bimetallic nanostructures.*
Z. Li, J. Rigor, **N. Large**, P.Z. El-Khoury, and D. Kourouski: [J. Phys. Chem. C 2021, 125, 2492](#)
12. *Plasmonic-induced luminescence of MoSe₂ monolayers in a scanning tunneling microscope.*
R. Péchou, J. Shuai, J. Rigor, O. Guillermet, G. Seine, J. Lou, **N. Large**, A. Mlayah, and R. Coratger: [ACS Photonics 2020, 7, 3061](#)
13. *Wavelength and polarization dependence of second harmonic responses from gold nanocrescent arrays.*
H. Maekawa, E. Drobnykh, C.A. Lancaster, **N. Large**, G.C. Schatz, J.S. Shumaker-Parry, M. Sukharev, and N.-H. Ge: [J. Phys. Chem. C 2020, 124, 20424](#)
14. *Multiphysics modeling of plasmonic photothermal heating effects in gold nanoparticles and nanoparticle arrays.*
S. Manrique-Bedoya, M. Abdul-Moqueet, P. Lopez, T. Gray, M. Disiena, A. Locket, S. Kwee, L. Tang, R.L. Hood, Y. Feng, **N. Large**, and K.M. Mayer: [J. Phys. Chem. C 2020, 124, 17172](#)
15. *Direct experimental evidence of hot-carrier-driven chemical processes in tip-enhanced Raman spectroscopy (TERS).*

- R. Wang, J. Li, J. Rigor, **N. Large**, P.Z. El-Khoury, A.Y. Rogachev, and D. Kurouski: [J. Phys. Chem. C 2020, 124, 2238](#)
16. *Controlled overgrowth of five-fold concave nanoparticles into plasmonic nanostars and their single-particle scattering properties.*
J.J. Velázquez-Salazar, L. Bazán-Díaz, Q. Zhang, R. Mendoza-Cruz, J.L. Montañó-Priede, G. Guisbiers, **N. Large**, S. Link, and M. José-Yacamán: [ACS Nano 2019, 13, 10113](#)
 17. *Detection of Discosoma Red fluorescent proteins adhered on silver nanoparticles based nanocomposites via surface-enhanced Raman scattering.*
A. Scarangella, M. Soumbo, A. Mlayah, C. Bonafos, M.-C. Monje, C. Roques, C. Mercelot, T. Dammak, **N. Large**, and K. Makasheva: [Nanotechnology 2019, 30, 165101](#)
 18. *Surface enhanced resonant Raman scattering in hybrid MoSe₂@Au nanostructures.*
I. Abid, W. Chen, J. Yuan, S. Najmaei, E.C. Peñafiel, R. Péchou, **N. Large**, J. Lou, and A. Mlayah: [Opt. Express 2018, 26, 29411](#)
 19. *Unraveling near- and far-field relationship of 2D SERS substrates using wavelength-scanned surface-enhanced Raman excitation spectroscopy (WS-SERES).*
D. Kurouski, **N. Large**, N. Chiang, A.-I. Henry, T. Seideman, G.C. Schatz, and R.P. Van Duyne: [J. Phys. Chem. C 2017, 121, 14737](#)
 20. *On the efficient excitation of higher order modes in the plasmonic response of individual gold nanocubes.*
A. Maiti, A. Maity, B. Satpati, **N. Large**, and T.K. Chini: [J. Phys. Chem. C 2017, 121, 731](#)
 21. *Reversible shape and plasmon tuning in hollow AgAu nanorods.*
S. Yazdi, J.R. Daniel, **N. Large**, G.C. Schatz, D. Boudreau, and E. Ringe: [Nano Lett. 2016, 16, 6939](#)
 22. *High-Resolution Distance Dependence Study of Surface-Enhanced Raman Scattering Enabled by Atomic Layer Deposition.*
S.S. Masango, R.A. Hackler, **N. Large**, A.-I. Henry, M.O. McAnally, G.C. Schatz, P.C. Stair, and R.P. Van Duyne: [Nano Lett. 2016, 19, 4251](#)
 23. *Ag–Ag₂S hybrid nanoprisms: structural versus plasmonic evolution.*
M.M. Shahjamali, Y. Zhou, N. Zaree, C. Xue, J. Wu, **N. Large**, M. McGuirk, F. Boey, V. Dravid, G.C. Schatz, and C.A. Mirkin: [ACS Nano 2016, 10, 5362](#)
 24. *Unraveling near-field and far-field relationships for 3D SERS substrates: a combined experimental and theoretical analysis.*
D. Kurouski, **N. Large**, N. Chiang, N. Greeneltch, K.T. Carron, T. Seideman, G.C. Schatz, and R.P. Van Duyne: [Analyst 2016, 141, 1779](#)
 25. *Influence of surfactant bilayers on the refractive index sensitivity and catalytic properties of anisotropic gold nanoparticles.*
E. Martinsson, M.M. Shahjamali, **N. Large**, N. Zaree, Y. Zhou, G.C. Schatz, C.A. Mirkin, and D. Aili: [Small 2016, 12, 330](#)
 26. *High-density 2D homo- and hetero- plasmonic dimers with universal sub-10-nm gaps.*
M. Zhang, **N. Large**, A.L. Koh, Y. Cao, A. Manjavacas, P. Nordlander, R. Sinclair, and S.X. Wang: [ACS Nano 2015, 9, 9331](#)
 27. *Electron energy-loss spectroscopy calculations in finite-difference time-domain package.*
Y. Cao, A. Manjavacas, **N. Large**, and P. Nordlander: [ACS Photonics 2015, 2, 369](#)
 28. *Standing wave plasmon modes interact in an antenna-coupled nanowire.*
J.K. Day, **N. Large**, P. Nordlander, and N.J. Halas: [Nano Lett. 2015, 15, 1324](#)
 29. *Gold nanoparticles with tipped surface structures as substrates for single-particle SERS: concave nanocubes, nanotrisoctahedra, and nanostars.*
Q. Zhang, **N. Large**, and H. Wang: [ACS Appl. Mater. Interfaces 2014, 6, 17255](#)

30. *Epitaxial growth of Cu₂O on Ag allows for fine control over particle geometries and optical properties of Ag–Cu₂O core-shell nanoparticles.*
H. Jing, **N. Large**, Q. Zhang, and H. Wang: [J. Phys. Chem. C 2014, 118, 19948](#)
31. *Tunable plasmonic nanoparticles with catalytically active high-index facets.*
H. Jing, Q. Zhang, **N. Large**, C. Yu, D.A. Blom, P. Nordlander, and H. Wang: [Nano Lett. 2014, 14, 3674](#)
32. *Porous Au nanoparticles with tunable plasmon resonances and intense field enhancement for single-particle SERS.*
Q. Zhang, **N. Large**, P. Nordlander, and H. Wang: [J. Phys. Chem. Lett. 2014, 5, 370](#); [ACS Liveslides](#)
33. *Hot-electron-induced dissociation of H₂ on gold nanoparticles supported on SiO₂.*
S. Mukherjee, L. Zhou, A.M. Goodman, **N. Large**, C. Ayala Orozco, Y. Zhang, P. Nordlander, and N.J. Halas: [J. Am. Chem. Soc. 2014, 136, 64](#)
34. *Orienting nanoantennas in three dimensions to control light scattering across a dielectric interface.*
N.S. King, M.W. Knight, **N. Large**, A.M. Goodman, P. Nordlander, and N.J. Halas: [Nano Lett. 2013, 13, 5997](#)
35. *Near-field mediated plexcitonic coupling and giant Rabi splitting in individual metallic dimers.*
A.E. Schlather, **N. Large**, A.S. Urban, P. Nordlander, and N.J. Halas: [Nano Lett. 2013, 13, 3281](#)
36. *Three-dimensional plasmonic nanoclusters.*
A.S. Urban, X. Shen, Y. Wang, **N. Large**, H. Wang, M.W. Knight, P. Nordlander, H. Chen, and N.J. Halas: [Nano Lett. 2013, 13, 4399](#)
37. *Local electron beam excitation and substrate effect on the plasmonic response of single gold nanostars.*
P. Das, A. Kedia, P.S. Kumar, **N. Large**, and T.K. Chini: [Nanotechnology 2013, 24, 405704](#)
38. *Hot electrons do the impossible: plasmon-induced dissociation of H₂ on Au.*
S. Mukherjee, F. Libisch, **N. Large**, O. Neumann, L.V. Brown, J. Cheng, B. Lassiter, E. Carter, P. Nordlander, and N.J. Halas: [Nano Lett. 2013, 13, 240](#)
39. *Plasmonic properties of gold ring-disk nano-resonators: fine shape details matter.*
N. Large, J. Aizpurua, V.K. Lin, S.L. Teo, R. Marty, S. Tripathy, and A. Mlayah: [Opt. Express 2011, 19, 5587](#)
40. *Gold nanoring trimers: a versatile structure for infrared sensing.*
S.L. Teo, V.K. Lin, R. Marty, **N. Large**, E. Alarcon Llado, A. Arbouet, C. Girard, J. Aizpurua, S. Tripathy, and A. Mlayah: [Opt. Express 2010, 18, 22271](#)
41. *Raman-Brillouin electronic density in short period superlattices.*
N. Large, J.-R. Huntzinger, J. Aizpurua, B. Jusserand, and A. Mlayah: [Phys. Rev. B 2010, 82, 075310](#)
42. *Photoconductively loaded plasmonic nanoantennas as building block for ultracompact optical switches.*
N. Large, M. Abb, J. Aizpurua, and O.L. Muskens: [Nano Lett. 2010, 10, 1741](#)
43. *Acousto-plasmonic hot spots in metallic nano-objects.*
N. Large, L. Saviot, J. Margueritat, J. Gonzalo, C.N. Afonso, A. Arbouet, P. Langot, A. Mlayah, and J. Aizpurua: [Nano Lett. 2009, 9, 3732](#)
44. *Raman-Brillouin light scattering in low-dimensional systems: photoelastic model versus quantum model.*
A. Mlayah, J.-R. Huntzinger, and **N. Large**: [Phys. Rev. B 2007, 75, 245303](#)

Proceedings (6)

1. *A new approach for the optical sensing of contaminants of emerging concern based upon core-shell nanoparticles*

- C. Marquez Ibarra, G. Morales-Luna, **N. Large**, N. Ornelas-Soto, and K. M. Mayer: [Proc. SPIE 12196, Active Photonic Platforms 2022, 121960B, 2022](#)
2. *My opinion on virtual conferences.*
N. Large: ResearchGate (2020), <http://dx.doi.org/10.13140/RG.2.2.33010.02241>
 3. *Synthesis, characterization, and computational modeling of polyelectrolyte-coated plasmonic gold nanorods for photothermal heating studies.*
P. Lopez, K. Mayer, and **N. Large**: [Proc. SPIE 11082, Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XVII, 11082W1-5, 2019](#)
 4. *Fabrication and characterization of thermo-responsive gold nanorod assemblies.*
G. Bustamante, K. Carrizales, F. DeLuna, **N. Large**, and J.Y. Ye: [Proc. SPIE 10507, Colloidal Nanoparticles for Biomedical Applications XIII, 105070B1-10, 2018](#)
 5. *Acousto-plasmonic coupling in engineered in metal nanocomposites.*
N. Large, A. Mlayah, L. Saviot, J. Margueritat, J. Gonzalo, C.N. Afonso, and J. Aizpurua: [Lasers and Electro-Optics \(CLEO\) and Quantum Electronics and Laser Science Conference, 2010, 1, doi: 10.1364/CLEO.2010.CFM2.](#)
 6. *Plasmonic nanoantennas as building blocks for ultracompact photonic devices.*
J. Aizpurua, **N. Large**, M. Abb, and O.L. Muskens: [Photonics Society Summer Topical Meeting Series, 2010, 70, doi: 10.1109/PHOSST.2010.5553675](#)

Conferences – Talks (37)

1. 16th International Conference on Near-Field Optics, Nanophotonics, and Related Techniques (NFO-16), Victoria, Canada (Aug. 2022)
• *Acousto-Plasmonic Coupling: The Raman Energy Density (RED)*
N. Large, J.L. Montaño-Priede, A. Mlayah
2. ACS Fall Meeting, Chicago, IL, US (Aug. 2022)
• *Raman Energy Density (RED) in the Context of Acousto-Plasmonics (INVITED)*
N. Large, J.L. Montaño-Priede, A. Mlayah
3. NanoX/FeRMI days, Toulouse, France (Mar. 2022)
• *Raman Energy Density (RED) in the Context of Acousto-Plasmonics (INVITED)*
N. Large, J.L. Montaño-Priede, A. Mlayah
4. PQE conference, Snowbird, UT, US (Jan. 2022)
• *Plasmon-phonon interaction and acoustic Raman Scattering of plasmonic nanoparticles (INVITED)*
5. ImagineNano 2021: Phononics, Photonics, Plasmonics, Magneto-Optics, Bilbao, Spain (Nov. 2021)
• *Photonic Band Structure Calculation of 3D-Finite Nanostructured Supercrystals*
J.L. Montaño-Priede and **N. Large**
6. JSAP-OSA Joint Symposia, Virtual (June 2020)
• *Morphological Effects on the Plexitonic Interaction in Au@MoSe₂ Nanodisk Dimers*
E.C Peñafiel, I. Abid, A. Mlayah, and **N. Large**
• *Finite-Size Effects in Periodic Silver Nanosphere Arrays Revealed using Electron Energy-Loss Spectroscopy (EELS) Modeling*
R. Kraja and **N. Large**
• *Plasmonic Heating Effects in Tip-Enhanced Raman Spectroscopy (TERS)*
J. Rigor and **N. Large**
• *High Order Modes in Nanodisk Stacking*
V. Nooshnad and **N. Large**
7. 94th ACS Colloid & Surface Science Symposium, Houston, TX, US (June 2020)
• *Acousto-plasmonic coupling: The Raman energy density (INVITED)*
N. Large, J.L. Montaño-Priede, and A. Mlayah

8. 6th International Conference on Frontiers of nano-Photonics (FOP6), Kunming, China (Mar. 2020)
 - *Acousto-plasmonic coupling: The Raman energy density (INVITED)***N. Large**, J.L. Montaño-Priede, and A. Mlayah
9. MRS Spring Meeting, Phoenix, AZ, US (Apr. 2019)
 - *Study of the plasmon-exciton coupling in hybrid nanostructured superlattices***N. Large**, and J.L. Montaño-Priede
 - *Acousto-plasmonic coupling – The Raman energy density***N. Large**, J.L. Montaño-Priede, L. Saviot, and A. Mlayah
10. PQE conference, Snowbird, UT, US (Jan. 2019)
 - *Acousto-plasmonic interaction in metallic nanoparticles (INVITED)*
11. ACS Fall Meeting, Boston, MA, US (Aug. 2018)
 - *Acousto-plasmonic interaction: from Fermi golden rules to Raman energy density (INVITED)*
12. PQE conference, Snowbird, UT, US (Jan. 2018)
 - *Numerical modeling of electron energy-loss spectroscopy in complex plasmonic nanostructures (INVITED)*
13. SPIE Optics & Photonics, San Diego, CA, US (Aug. 2017)
 - *Novel numerical method for electron energy-loss spectroscopy: EELS-FDTD (INVITED)*
14. MRS Spring Meeting, Phoenix, AZ, US (Apr. 2017)
 - *Novel numerical method for electron energy-loss spectroscopy calculation (INVITED)***N. Large**, A. Manjavacas, E. Ringe, G.C. Schatz, and P. Nordlander
15. ACS Spring Meeting, San Francisco, CA, US (Apr. 2017)
 - *Novel numerical method for electron energy-loss spectroscopy calculation: EELS-FDTD***N. Large**, A. Manjavacas, E. Ringe, G.C. Schatz, and P. Nordlander
16. 13th International Conference on Nanotek and Expo, Phoenix, AZ (Dec. 2016)
 - *Computational Nanoplasmonics: Success and Challenges (KEYNOTE)*
17. Nanotechnology week 2016, Hermosillo, Mexico (Oct. 2016)
 - *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications. (INVITED)*
18. 14th International Conference on Near-Field Optics, Nanophotonics, and Related Techniques (NFO-14), Hamamatsu, Japan (Sep. 2016)
 - *Electron energy-loss spectroscopy calculation in finite-difference time-domain: EELS-FDTD.***N. Large**, A. Manjavacas, E. Ringe, G.C. Schatz, and P. Nordlander
19. Trends In Nanotechnology International Conference (TNT2015), Toulouse, France (Sep. 2015)
 - *Electron energy-loss spectroscopy calculation in finite-difference time-domain package: EELS-FDTD. (INVITED)***N. Large**, Y. Cao, A. Manjavacas, M. Zhang, J. Ku, M.M. Shahjamali, S.X. Wang, C.A. Mirkin, G.C. Schatz, and P. Nordlander
20. APS March Meeting, San Antonio, TX, US (Mar. 2015)
 - *Influence of surfactant bilayers and substrate immobilization on the refractive index sensitivity of anisotropic gold nanoparticles.***N. Large**, M.M. Shahjamali, E. Martinsson, N. Zaree, G.C. Schatz, D. Aili, and C.A. Mirkin
 - *Standing wave plasmon modes interact in an antenna-coupled nanowire.***N. Large**, J.K. Day, P. Nordlander, and N.J. Halas
 - *Electron energy-loss spectroscopy (EELS) calculation in finite-difference time-domain (FDTD) package: EELS-FDTD.***N. Large**, Y. Cao, A. Manjavacas, and P. Nordlander
 - *Tunable plasmonic nanoparticles with catalytically active high-index facets.***N. Large**, H. Jing, Q. Zhang, P. Nordlander, and H. Wang

21. APS March Meeting, Denver, CO, US (Mar. 2014)
 - *Near-field mediated plexcitonic coupling and giant Rabi splitting in individual metallic dimers.*
N. Large, A.E. Schlather, A.S. Urban, P. Nordlander, and N.J. Halas
 - *Three-dimensional plasmonic nanoclusters.*
N. Large, A.S. Urban, X. Shen, Y. Wang, H. Wang, M. Knight, P. Nordlander, H. Chen, N.J. Halas
22. 4th European Topical Meeting on Nanophotonics & Metamaterials (Nanometa), Seefeld, Austria (Jan. 2013)
 - *Plexcitonic induced transparency (EIT-like) in metallic dimers.*
N. Large, A.E. Schlather, N.J. Halas, and P. Nordlander
 - *Plasmonic graphene-antenna sandwich photodetector.*
 Z. Fang, **N. Large**, Y. Wang, P. Nordlander, and N.J. Halas
23. 5th International Conference on Surface Plasmons Photonics (SPP5), Busan, Korea (May 2011)
 - *Acousto-plasmonic dynamics in Raman scattering.*
N. Large, L. Saviot, J. Aizpurua, and A. Mlayah
24. 2^a Conferencia Española de Nanofotónica (CEN), Segovia, Spain (June 2010)
 - *Photoconductively loaded plasmonic nanoantennas as building block for ultracompact optical switches.*
N. Large, M. Abb, J. Aizpurua, and O.L. Muskens
25. 13th International Conference on Phonon Scattering in Condensed Matter, Taipei, Taiwan (Apr. 2010)
 - *Acousto-plasmonic hot spots in metallic nano-objects.*
N. Large, A. Mlayah, L. Saviot, J. Margueritat, J. Gonzalo, C.N. Afonso, and J. Aizpurua
 - *Highly selective photoelastic coupling through confined electron eigenstates in superlattices.*
N. Large, B. Jusserand, J.-R. Huntzinger, J. Aizpurua, and A. Mlayah
26. 2nd European Topical Meeting on Nanophotonics & Metamaterials (Nanometa), Seefeld, Austria (Jan. 2009)
 - *Interaction of surface plasmons and acoustic vibrations in metallic nano-objects.*
N. Large, J. Aizpurua, A. Mlayah, and L. Saviot
27. APS March Meeting, New Orleans, LA, US (Mar. 2008)
 - *Raman-Brillouin electronic density in GaAs/AlAs superlattices.*
N. Large, A. Mlayah, J. Aizpurua, J.-R. Huntzinger, and B. Jusserand

Invited seminars & Lectures (22)

1. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, University of Technology of Troyes (UTT), Troyes, France (May 2022)
2. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, CEMES-CNRS, Toulouse, France (April 2022)
3. *Hybrid plasmonics & elementary excitations*, College of Chemistry, Jilin University, China (Apr. 2020)
4. *Hybrid plasmonics & elementary excitations*, School of Physics, Peking University, Beijing, China (Mar. 2020)
5. *Hybrid plasmonics and elementary excitations*, Laboratory for Analysis and Architecture of Systems, LAAS-CNRS, Toulouse, France (Nov. 2019)
6. *Quantum Research at UTSA*, Texas Quantum Institute, College Station, TX (Oct. 2019)
7. *Computational Plasmonics*, Center for Materials Elaboration and Structural Studies, CEMES-CNRS, Toulouse, France (May 2019)
8. *Plasmonic properties of hybrid nanostructures*, University of Cambridge, UK (Oct. 2018)
9. *Plasmonic properties of hybrid nanostructures*, Institut Lumière Matière, Lyon, France (Oct. 2018)

10. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, Stanford University, Stanford, CA (Jul. 2017)
11. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, University of Texas, Austin, TX (Dec. 2016)
12. *Plasmonic properties of metallic and hybrid nanostructures from fundamental physics to applications*, Faculty of Sciences, UNAM, Mexico City, Mexico (Oct. 2016)
13. *Plasmonic properties of metallic and hybrid nanostructures from fundamental physics to applications*, Institute of Physics, UNAM, Mexico City, Mexico (Oct. 2016)
14. *Computational plasmonics: from fundamental physics to applications*, San Antonio Nanotechnology Forum, San Antonio, TX (Oct. 2016)
15. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, Southwest Research Institute, SwRI, San Antonio, TX (Sep. 2016)
16. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, CEMES-CNRS, Toulouse, France (May 2016)
17. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, Center for Materials Physics, San Sebastián, Spain (May 2016)
18. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, University of Maryland, Baltimore County, MD (Mar. 2016)
19. *Plasmonic properties of metallic and hybrid nanostructures: from fundamental physics to applications*, University of Texas, San Antonio, TX (Feb. 2016)
20. *Plasmonic properties of metallic and hybrid nanostructures: from chemistry to optical engineering*, University of Delaware, Newark, DE (Jan. 2015)
21. *Plasmonic properties of metallic and hybrid nanostructures: from chemistry to optical engineering*, Northwestern University, Evanston, IL (Feb. 2014)
22. *Acousto-plasmonic dynamics in metallic nano-objects*, Institute of Materials Research and Engineering (IMRE) A*STAR, National University of Singapore, Singapore (Nov. 2009)

Research highlights & Popular media (16)

1. [LinkedIn](#): *My opinion on virtual conferences* (May 14, 2020)
2. [UTSA OIT News](#): *UTSA's main high performance computing cluster cited in scientific journal* (Nov. 28, 2018)
3. [Eurekalert](#): *Core technology springs from nanoscale rods* (Oct. 10, 2016)
4. [ACS Video Highlight](#): *High-density 2D homo- and hetero- plasmonic dimers with universal sub-10-nm gaps* (Sept. 25, 2015)
5. [Photonics.com](#): *Team bridges nanocatalyst size gap for real-time data* (June 9, 2014)
6. [R&D](#): *Opening a wide window on the nano-world of surface catalysis* (June 6, 2014)
7. [Nanotechweb.org](#): *Etched nanoparticles both catalyse and track reactions* (May 28, 2014)
8. [APS March meeting image gallery](#): *Nanoclusters building blocks* (Mar. 2014)
9. [ElectroOptics.com](#): *Rice University fabricates stable 3D plasmonic nanoclusters* (Nov. 4, 2013)
10. [Andor.com](#): *Rice team fabricates stable three-dimensional plasmonic nanoclusters* (Oct. 30, 2013)
11. [Nanowerk.com](#): *3D plasmonic nanoclusters open up access to a new dimension of optically active materials* (Sep. 4, 2013)
12. [Phys.org](#): *Hot electrons do the impossible in catalytic chemistry* (Dec. 17, 2012)
13. [Nanotechweb.org](#): *Hybrid nanoantenna advances optical devices* (May 19, 2011)

14. [DIPC Highlights](#): *Nanoantennas for ultrafast optical switches* (May, 2010)
15. [Nanotechweb.org](#): *Nanoantennas for ultrafast optical switches* (May 7, 2010)
16. [DIPC Activity Report 08/09](#): *Acousto-plasmonic hot sports in metallic nano-objects* (Apr. 2010)

Non-Academic Involvement and Services

- | | |
|-----------|---|
| 1996-2012 | Certified tennis official (Chair umpire, Chief umpire, and Referee), International Tennis Federation <ul style="list-style-type: none"> • <i>Officiated at the French Open, Wimbledon, Davis Cup, ATP, WTA, and ITF events</i> • <i>Trained, evaluated, and assigned national officials on ITF tournaments</i> |
| 2001-2012 | Head of the Officiating department , Midi-Pyrénées section, French Tennis Federation <ul style="list-style-type: none"> • <i>Managed ~1,000 officials: taught officiating, prepared annual and re-certification exams, evaluated/trained/assigned officials, and managed budgets and department finances</i> |
| 2004-2012 | General manager in charge of education and competition, Bérat tennis club, France <ul style="list-style-type: none"> • <i>Managed ~100 members: managed teams and the tennis school, and public relations</i> |

Student and Postdoctoral Researcher Supervision

Postdoctoral Researchers (1)

- 2017 – 2021 José Luis Montaño-Priede – Now postdoctoral researcher at CFM-CSIC, Spain

Graduate Students (11)

- | | |
|----------------|--|
| 2022 – present | Alex B. Ferere, “ <i>Plasmon-induced optical forces in acousto-plasmonics</i> ” |
| 2021 – present | John Leblanc, “ <i>Acousto-plasmonic interaction for unconventional nanoscale light manipulation and integrated high accuracy sensors</i> ” |
| 2021 – present | Julia Kise, “ <i>Acousto-plasmonic interactions in complex plasmonic nanostructures</i> ” |
| 2020 – present | Michael Brinkman, “ <i>Unravel novel polariton states in hybrid metasurfaces and nanomaterials</i> ” |
| 2018 – 2022 | Priscilla Lopez (co-advisor), “ <i>Optical and photothermal properties of plasmonic-biomolecular nanosystems</i> ” |
| 2017 – 2022 | Joel Rigor, “ <i>Optical, thermal, and vibrational, properties of hybrid nanomaterials</i> ”
– Now Process engineer III at Applied Materials, Santa Clara, CA, US |
| 2019 – 2021 | Emil C. Peñafiel, “ <i>Theoretical investigation of coupled-excited states in hybrid nanomaterials: a road toward artificial photosynthesis</i> ” |
| 2018 – 2021 | Vida Nooshnab, “ <i>Active hybrid plasmonics for ultrafast optoelectronic devices</i> ”
– Now Ph.D. student at University of Wisconsin (ECE), Madison, WI, US |
| 2019 | Jesús Castrejón Figueroa, “ <i>Electron energy-loss spectroscopy simulations for hybrid plasmon-exciton nanostructures using MNPBEM</i> ”
– Now Ph.D. student at UNAM (Physics), Mexico, Mexico |
| 2019 | Aurélien Goerlinger, “ <i>Acousto-plasmonic interaction in Raman scattering</i> ”
– Now Ph.D. student at the University of Lille, IEMN (Physics), Lille, France |
| 2016 – 2018 | Gesuri Morales Luna (co-advisor), “ <i>Theoretical study of magneto-plasmonic interactions in hybrid nanostructures</i> ”
– Now Assistant Professor at Universidad Iberoamericana (IBERO), Mexico |

Honors Thesis (2)

- | | |
|-------------|--|
| 2020 – 2022 | Rudin Kraja, “ <i>Computational Modeling of the Electron Energy Loss Spectroscopy (EELS) of Plasmonic Metasurfaces</i> ” |
| 2018 – 2019 | Joseph I. Garcia, “ <i>Nonlinear plasmonics</i> ” |

Undergraduate Students (17)

2022 – present	Mariano Alcalde (PHY)
2022	Esteban Ramirez (PHY)
2021 – 2022	Alex B. Ferere (PHY) – Now Ph.D. student at UTSA (Physics)
2019 – 2022	Rudin Kraja (PHY) – Now Ph.D. student at CUNY (Physics)
2021	Miguel Hernandez (PHY)
2021	Zain Manasia (BIO) – Now Research Intern at Columbia Business School
2018 – 2020	Michael Brinkman (MATH/PHY) – Now M.S. student at UTSA (Mathematics)
2019 – 2020	Ray Hagimoto (PHY) – Now Ph.D. student at Rice University (Physics)
2018 – 2019	Joseph I. Garcia (PHY) – Now Ph.D. student at Auburn University (Physics)
2017 – 2019	Brandon E. Rangel (PHY) – Now Business Applications Consultant at Altriva Solutions
2019	Reid Shillingburg (PHY) – Now Technician at FUJIFILM Diosynth Biotechnologies
2018	Ramón Amezcuita Vizcarra (PHY) – Now Machine learning engineer at Kuona Analytics
2018	Daniel Angel (PHY)
2018	Mauricio Martinez (CS) – Now software engineer at Sierra Nevada Corporation
2017 – 2018	Emil C. Peñafiel (PHY)
2017 – 2018	Nelson Umanzor Meija (PHY) – Now Assistant Health Physicist I at Texas A&M University
2015 – 2016	Negin Zaraee (CHEM) – Now senior optical manufacturing engineer at 10x Genomics

Doctoral Dissertation Committees (14)

2022 – present	Carlos Marquez Ibarra (PHY), <i>“Nano-colloid of core-shell particles as a new approach for the optical sensing of contaminants of emerging concern ”</i>
2021 – present	Mason Leist (PHY), <i>“Characterization of polar dust in active galactic nuclei”</i>
2021 – present	Geronimo Robles (PHY), <i>“Fabrication, characterization and testing of high uranium density, nuclear fuel composites”</i>
2021 – present	John Cadena (PHY), <i>“Gorini-Kossakowski-Sudarshan-Lindblad equation”</i>
2022	Louis Merle (PHY), <i>“Coupling between electron transport and plasmon in Au nanoparticle assemblies”</i>
2020 – 2022	Jose Raul Montes Bojorquez (PHY), <i>“Efficient light harvesting for photovoltaics using multi-quantum dot arrays”</i>
2020 – 2022	Shaquan David (PHY), <i>“Investigation of the radiobiological effects of nanoparticle enhanced radiation”</i>
2021	Matti Urbieta (MAT), <i>“Theoretical approach to atomic-scale nanoplasmonics as probed by light and swift electrons”</i>
2019 – 2021	Janeth Alexandra García Monge (PHY), <i>“Spin pumping modulation in YIG-based structures employing piezoelectric strain”</i>
2018 – 2020	Sharon Kwee (BME), <i>“Fabrication and optimization of a gold nanorod array for sensing applications”</i>
2018 – 2020	Adrian Zepeda (PHY), <i>“Reconfigurable metamaterials for THz devices”</i>

- 2018 – 2020 Santiago Manrique (MECH), *“Computational modeling of pancreatic cancer: fluid flow and plasmonic photothermal therapy”*
- 2018 – 2020 Tara Gray (PHY), *“Optimization of gold nanoparticles for enhanced radiation therapy, high-dose rate Ir-192 brachytherapy and CT image contrast”*
- 2017 – 2019 Clarissa Vazquez Colon (PHY), *“Materials and device characterization at THz frequencies”*