**Tomás Palacios**

**Massachusetts Institute of Technology (MIT)**

Professor,Department of Electrical Engineering and Computer Science (EECS),

School of Engineering (SOE)

1. **EDUCATION**:

School Degree Date

Polytechnic University of Madrid, Spain B.S/M.Sc. 2001

University of California, Santa Barbara M.Sc. 2004

University of California, Santa Barbara Ph.D. 2006

1. **TITLE OF THESIS FOR MOST ADVANCED DEGREE:**

Optimization of the High Frequency Performance of Nitride-based Transistors

1. **PRINCIPAL FIELDS OF INTEREST:**

Semiconductor device physics; nanotechnology; electronics

1. **NON-MIT EXPERIENCE (INCLUDING MILITARY SERVICE):**

Employer Position Beginning Ending

Polytechnic University of Madrid Underg. Research Asst. June 1997 Sept. 2001

Polytechnic University of Madrid Grad. Research Asst. Sept. 2001 July 2002

Univ. of California, Santa Barbara Grad. Research Asst. July 2002 March 2006

Univ. of California, Santa Barbara Project Scientist March 2006 June 2006

1. **HISTORY OF MIT APPOINTMENTS:**

Rank Beginning Ending

Assistant Professor Aug. 2006 June 2010

Associate Professor (without tenure) July 2010 June 2012

Associate Professor (with tenure) July 2012 June 2016

Professor (with tenure) July 2016 present

1. **GOOGLE SCHOLAR PUBLICATIONS AND CITATIONS:**

[Click here to visit Tomás Palacios Google Scholar profile](https://scholar.google.com/citations?user=ARW3LKEAAAAJ&hl=en&oi=ao)

1. **DEPARTMENT AND INSTITUTE COMMITTEES, OTHER ASSIGNED DUTIES:**

Activity Beginning Ending

Member, MIT-Spain MISTI Advisory Board Jan. 2007 July 2008

Member of the EECS Graduate Admission Committee Dec. 2007 present

Member, MTL Process Technology Committee Jan. 2008 present

Member, MIT 2020 Committee Oct. 2008 2010

Chair, MTL Seminar Series Committee Jan. 2009 Apr. 2015

MTL Faculty Liaison with Veeco Instruments March 2009 July 2012

Member, MTL Policy Board Sept. 2010 Sept. 2012

Member, MIT-Lincoln Lab Campus Interaction Committee Sept. 2010 present

Director, MIT Center for Graphene Devices and Systems Sept. 2010 present

Member, EECS Undergraduate Experience Committee Aug. 2011 July 2012

Director, MIT GaN Energy Initiative Sept. 2011 present

Chair, MIT-Lincoln Lab Campus Interaction Committee Sept. 2013 Sep. 2018

Member, MIT Campaign Launch Committee June 2014 June 2014

Member, MTL Equipment Acquisition Committee Oct. 2014 present

Faculty Lead MIT/Masdar Institute Microsystems program Feb. 2015 2017

Member, EECS Curriculum Committee (ECC) June 2015 Sep. 2016

Member, EECS Department Head Search Committee April 2016 June 2016

Member, EECS Faculty Search Committee Sep. 2015 present

Member, EE Revitalization Committee Sept. 2016 2017

Member, EECS Department Head Search Committee June 2017 Oct. 2017

Member, Committee for Prof. Dresselhaus (Memorial Workshop) Apr. 2017 Dec. 2017

Member, EE Graduate Student Admission Committee Sept. 2018 present

Chair, EE Hardware Faculty Search Sub-Committee Sept. 2018 June 2021

Member, Committee on Nominations Sept. 2018 June 2019

Chair, Committee on Nominations Sept. 2019 June 2021

Industry Officer, Department EECS 2015 present

*Designed and implementated the new EECS Alliance program*

Director, EECS 6A MEng Thesis Program. Jun. 2015 present

*This year, thanks to the new partner companies and initiatives such as 6-AX, we received a record number of applicants (~200) between the Spring and Fall application periods. We also have a record number of partner companies (~30).*

Founder, MA Microelectronics Internship Program (MMIP) 2022 present

*In 2022, designed and implemented new Massachusetts-based summer internship program for freshmen and sophomore students (*[*https://www.ma-microelectronics.org/*](https://www.ma-microelectronics.org/) *<*[*https://www.ma-microelectronics.org/*](https://www.ma-microelectronics.org/)*>). This program received more than 300 applications in 2022, half of them from MIT students interested in semiconductors and microelectronics. We have secured more than 50 internships so far (still working to connect a few more students with companies)*

Member, DMSE-SCC Joint Faculty Search Committee 2022 present

Co-Director of the SRC SUPREME Center 2022 present

*One of the 7 SRC JUMP 2.0 Centers that have been awarded in late 2022, with Director Prof. Grace Xing (Cornell Univ), Acting as Key Personnel in impacting other PIs (5 from MIT), and coordinating the proposal writing.*

Representative, MIT Massachusetts Edge Center 2022 present

Representative, MIT on the State proposal to the Microelectronics Commons program

2022 present

Director, Microsystems Technology Laboratories(MTL) DLC Dec 2002 present

1. **PROFESSIONAL SERVICE:**

**Activity** **Beginning Ending**

General Chair of the IEEE Symposium on VLSI Technology

and Circuits June 2021 2022

Short Course organizer of the IEEE ISPSD 202 2022

Member of Executive Committee of the IEEE Symposium on

VLSI Technology and Circuits 2018 present

Chair of the International Steering Committee of the Indium

Phosphide and Related Materials Conference 2018 2020

Director of Knowledge Transfer (NSF-Science and Technology

Center of Integrated Quantum Materials 2018 present

Technical Program Chair of the VLSI Technology Symposium June 2018 2020

General Chair of the 2018 Compound Semiconductors Week 2017 2018

Conference, which combines the 45th International Symposium

on Compound Semiconductors (ISCS), and the 30th International

Conference on Indium Phosphide and Related Materials (IPRM)

Secretary of the VLSI Technology Symposium 2016 2018

Associate Editor of the IEEE Electron Device Letters 2016 present

Chair of the International Steering Committee of the Indium

Phosphide and Related Materials Conference 2015 2016

General Co-chair of the 2016 International Workshop on

Compound Semiconductors 2015 2016

Technical Program Chair, 2015 Compound Semiconductor Week

Conference, which combines the 42nd International Symposium

on Compound Semiconductors (ISCS), and the 27th International

Conference on Indium Phosphide and Related Materials (IPRM) 2014 2015

Co-Organizer, Symposium CC in the Spring 2015 Materials

Research Society Meeting 2014 2015

Guest Editor of the March 2014 Issue of the IEEE Transactions

on Electron Devices 2012 2014

Referee: *Proceedings of the IEEE* 2011 present

Referee: *Nano Letters* 2011 present

Referee: *Nature Materials* 2011 present

Referee: *Nature Communications* 2011 present

Guest Editor, April 2013 Issue of the Proceedings of IEEE on

Emerging Graphene-Based Electronic and Photonic Devices,

Circuits and Systems 2011 2013

Reviewer of projects for the Japan Society for Promotion of Science 2010 present

Reviewer of projects for the Agency for Innovation, Belgium 2010 present

Reviewer of projects for the Defense Threat Reduction Agency 2010 present

Referee: *Science* 2010 present

Referee: *Nature* 2010 present

Member, Awards Committee of the International Symposium on

Compound Semiconductors (ISCS) 2010 2014

Member, Program Committee and Chair of the High Frequency,

High Power Subcommittee of the International Symposium on

Compound Semiconductors (ISCS) 2010 2010

Founding-member, IEEE MTT Technical Committee on

Nanoelectronics (MTT-25) 2009 present

Reviewer of projects for the European Science Foundation 2009 present

Reviewer of projects for the National Science Foundation (NSF) 2009 present

Member, Program Committee of the International Workshop on

Nitride Semiconductors 2009 present

Advisory Chair, International Conference on Advances in

Electronics and Micro-Electronics 2009 2012

Solid-State Device Research Conference (ESSDERC) 2008 present

Member, Technical Program Committee of the European 2008 present

Reviewer of projects for Spanish Ministry of Science 2008 present

Referee: *Applied Surface Science* 2008 present

Member, Program Committee of the International Conference

On Advances in Electronics and Micro-Electronics 2008 2012

Member, Program Committee of the International Electron Device

Meeting (IEDM) 2008 2009

Referee: *Journal of Crystal Growth* 2007 present

Referee: *Journal of Electronic Materials* 2007 present

Referee: *IEEE* *Solid State Electronics* 2007 present

Member, Technical Program Committee of the International

Conference for Nitride Semiconductors (ICNS) 2007 present

For Nitride Semiconductors (ICNS-7), Las Vegas, NV

Member, Program Committee of the Device Research

Conference (DRC) 2007 2009

Publication co-Chair and Guest Editor, International Conference 2007 2008

Referee: *Applied Physics Letters* 2006 present

Referee: *Journal of Applied Physics* 2006 present

Referee: *IEEE Electron Device Letters* 2006 present

Referee: *IEEE Transactions on Electron Devices* 2006 present

Referee: *IEEE Electronic Letters* 2006 present

Session chair in numerous semiconductor conferences 2006 present

Referee: *Physica Status Solidi (a, b, c)* 2005 present

Chair of the Electron Beam Lithography Committee of MIT.nano Dec. 2019 present

Chair of the Fab.nano Faculty Advocates Group Dec. 2019 present

Director of the MTL Center for Graphene Devices and Systems. Dec. 2019 present

Member of the MTL Policy Board Dec. 2019 present

Member of the MTL Grand Challenge Committee Dec. 2019 present

Director of MTL Dec 2022 present

Chair of the MIT Committee on the Undergraduate Program (CUP)

Chair of the Blue Sky Research Committee within the School of Engineering

Member, MIT-Spain MISTI Advisory Board

General Chair, VLSI Symposium on Technology and Circuits 2022 present

Member of the Steering Committee for the Indium Phosphide and Related Materials Conference, an annual international conference with ~400 attendees. As the previous conference chair, I was tasked to help and supervised the organization of the 2022 Compound Semiconductor Conference (CSW). 2022 present

Member of the IEEE Education Award Committee in the Electron Device Society

2022 present

Guest editor of a special issue of Applied Physics Letters on power electronics

2022 present

Director of Knowledge Transfer (NSF-Science and Technology Center of Integrated Quantum Materials) 2022 present

Associate Editor of the IEEE Electron Device Letters (top journal in my research field of semiconductor devices) 2022 present

Short course organizer for the 2022 International Symposium on Power Semiconductor Devices and IC 2022 present

Chair of the GaN Technical Program Committee of the 2022 and 2023 International Symposium on Power Semiconductor Devices and IC&#39;s 2022 present

Member of the Technical Program Committee of several international conferences, including the International Workshop on Compound Semiconductors, the International Electron Device Meeting, the International Symposium on Power Semiconductor Devices and IC&#39;s, and the International Conference on Nitride Semiconductors. 2022 present

Founding member of the Nanotechnology Subcommittee of the IEEE Microwave Theory and Techniques Society. 2022 present

Reviewer for several research proposals from the AFOSR and ARO. 2022 present

Member of the SRC Microelectronic and Advanced Packaging Technologies

(MAPT) Roadmap 2022 present

Member of the International Advisory Committee of the 12th International Conference on Electrical and Computer Engineering ICECE 2022 Dhaka, Bangladesh 2022 present

Member of the Editorial Board of the physica status solidi journal 2022 present

1. **AWARDS RECEIVED:**

Award Date

First Award in the “Madrid Science Museum Competition” 1995

International award: “Prämienprogramm zur Forderung der Ausbildung 1995

ausländischer Schüler in der deutschen Sprache. Internationales Preisträgerprogramm,” awarded by the German Ministry of Education

High School Extraordinary Award awarded by the Spanish Education 1996

Ministry to the best students in Spain

Gold Medal at the Spanish Mathematical Olympiad 1996

Representative of Spain in the 37th International Mathematical Olympiad 1996

held in Mumbai, India

Representative of Spain in the International Summer Fellowship at the 2000

European Organization for Nuclear Research (CERN)

Best Undergraduate EECS Student Award from the Polytechnic University 2000

of Madrid

Best Master’s Thesis Award from the Spanish Association of 2002

Telecommunication Engineers: “Nanotechnology for High Frequency Devices in III-N Nitrides: Applications to MSM UV-Detectors, SAW Filters and HEMT Transistors”

Salva i Campillo, awarded by the Catalan Association of Telecommunication 2003

Engineers to the “most promising European newcomer to Engineering”

Best Student Paper Award at the 63rd IEEE Device Research Conference 2005

(Santa Barbara, USA), June 2005

Young Researcher Award at the 6th International Conference on Nitride 2005

Semiconductors (Bremen, Germany)

Nominated by the IEEE for the 2006 and 2007 “New Faces of Engineering” 2005/06

Recognition Program

UCSB Lancaster Award for “the best PhD Dissertation in Mathematics, 2006

Physical Sciences and Engineering at UCSB in the period 2004-2006”

IEEE Electron Devices Society Masters Student Fellowship for “outstanding 2007

M.Sc. work” on electric field engineering of GaN HEMTs (Xu Zhao)

DARPA Young Faculty Award 2008

Best Paper Award at the International Conference on Advances in 2008

Electronics and Microelectronics

Office of Naval Research Young Investigator Award 2009

National Science Foundation (NSF) CAREER Award 2009

Best Paper Award at the 2010 Compound Semiconductors Manufacturing 2010

Technology (CS-ManTec) Conference

Young Scientist Award at the 37th International Symposium on Compound 2010

Semiconductors (Takamatsu, Japan)

MIT Emmanuel Landsman Career Development Chair 2010

National Academy of Engineering’s Frontiers of Engineering Fellow 2010

Distinguished Microwave Lecturer of the IEEE Microwave Theory and 2011/13

Techniques (MTT) Society

Presidential Early Career Award for Scientists and Engineers (PECASE) 2011

Roger A. Haken Best Student Paper Award at the 2012 International Electron 2012

Devices Meeting (IEDM)

IEEE Electron Devices Society George Smith Award for “The best paper 2013

appearing in a fast turnaround archival publication of the IEEE Electron

Devices Society, targeted to IEEE Electron Devices Letters"

Distinguished Citizen of Jaen (my hometown in Spain, one awardee per year) 2013

“Agustin de Betancourt” Award from the Spanish Royal Academy of 2013

Engineering, the most prestigious award given in Spain to an engineer less

than 36 years old

PhD Advisor of Dr. Han Wang, who received the Jin-Au Kong Doctoral Thesis 2013

Prize for the best EE-related PhD thesis in the EECS Department at MIT

PhD Advisor of Dr. Bin Lu, who received the MTL Doctoral Dissertation 2013

Award at MIT

Fellow of the Frontiers of Engineering Program (US-EU) of the National 2014

Academy of Engineering

PhD advisor of Sameer Joglekar, who received the 2014 Best Poster Award 2014

at the International Workshop on Nitride Semiconductors

Young Scientist Best Presentation Award from the Japan Society of Applied 2014

Physics

PhD advisor of Allen Hsu, who received the 2014 MTL Doctoral Dissertation 2014

Award at MIT

Ruth and Joel Spira Teaching Award 2015

Elevation of IEEE Fellow 2016

Appointment as Editor of IEEE Electron Device Letters 2016

Choiseul Ranking of top 100 “Economic Leaders for Tomorrow” in Spain 2017

PhD advisor of Sameer Joglekar, who received Best Student Paper 2017

Award: 2016 International Conference on Compound

Semiconductor Manufacturing

Manufacturing (CS-MANTECH)  2016

Thompson Reuters Highly Cited Researcher 2017

Selected for the Choiseul 2017 Ranking of top 100 2017

“Economic Leaders for Tomorrow”

NASA Group Achievement Award for the “Nanotechnology Incubator Team” 2017

Advisor to Ahmad Zubair, who received a 2018 Runner-up Best Student Paper 2018

Award at the 2018 Compound Semiconductor Week (CSW 2018)

Selection as a Clarivate/Thompson Reuters Highly Cited Researcher 2018

Plenary speaker at the 2018 International Workshop on Nitride 2018

Semiconductors (IWN)

Co-author in best student paper Award at the 2018 IEEE International 2018

Reliability Physics Symposium (IRPS)

The olderst High School in Spain, IES Cardenal Cisneros, named 2018

its Technology Laboratory after me.

Selection as a Clarivate/Thompson Reuters Highly Cited Researcher 2019

2020 Faculty Research Innovation Fellowship 2020

2019 Electron Devices Society George E. Smith Award 2020

Honorable Mention Award (ACM Conference) on Human Factors in Computing 2021

Systems (CHI) for the paper: “KnitUI: Fabricating Textile Sensor and User

Interface with Machine Knitting”

Recognition Award for Outstanding Service to IEEE Community during 2021

the organization of the 2020 IEEE Symposia on VLSI Technology and

Circuits

Highly Cited Researchers awarded by Clarivate 2021

“The Highly Cited 2021 Researchers list identifies researchers who produced

multiple papers ranking in the top 1% by citations for their chosen field or fields

and year of publication, demonstrating significant influence among their peers

Intel’s Outstanding Researcher Award 2021

Fellow of the Fundacion Gadea, which recognizes some of the most important Spanish scientists and engineers 2022

Clarivate Highly Cited Researchers 2022

IEDM 2022 paper on &#8220;Highly-Scaled GaN Complementary Technology on GaN-on-Si Platform&#8221; has one of the ~10 papers (out of more than 200) selected for publication in IEEE Trans. of Electron Devices. 2022

1. **CURRENT ORGANIZATION MEMBERSHIP:**

Organization Offices Held

American Physical Society (APS) Member

Institute of Electrical and Electronics Engineers (IEEE) Fellow

IEEE Electron Device Society (IEEE - EDS) Fellow, Member

IEEE Microwave Theory and Techniques Society (IEEE – MTT) Member, Nanotech.

Subcommittee

1. **PATENTS AND PATENT APPLICATIONS PENDING:** 
   1. T. Palacios, L. Shen and U. K. Mishra, “Methods to Shape the Electric Field in Electron Devices, Passivate Dislocations and Point Defects, and Enhanced the Luminescence Efficiency of Optical Devices,” Application No. PCT/US2006/044362, May 2007.
   2. L. S. McCarthy, U. K. Mishra, F. Recht, and T. Palacios, “Method to fabricate III-N field effect transistors using ion implantation with reduced dopant activation and damage recovering temperature,” Application No. PCT/US2008/003139, September 2008.
   3. T. Palacios and J. W. Chung, “HEMTs Based On Si/Nitride Structures,” Application No. PCT/US2008/060200, October 2008.
   4. T. Palacios, M. H. Wong, S. Rajan and U. K. Mishra, “Polarization-induced barriers for N-face nitride-based electronics,” Application No. PCT/US2008/064906, December 2008.
   5. T. Palacios, “Improving the Performance of Nitride Semiconductors Devices,” Application No. 2014-535875, June 2011.
   6. J.W. Chung and T. Palacios, “Devices Based on SI/Nitride Structures,” Patent No. 8188459, May 29, 2012.
   7. Y. Zhang, T. Palacios, “Structure and Process Technology for High Linearity in GaN Transistors,” Application No. 14/284135, February 2013.
   8. B. Lu and T. Palacios, “Dual Gate Normally-Off Nitride Transistors,” Patent No. 8587031, November 19, 2013.
   9. Wang, Han, Yu, Lili, and T. Palacios, “Process and Apparatus for Fabrication of Layer Materials and Devices,” Application No. P201331701, November 2013.
   10. J. W. Chung, H. Wang, and T. Palacios “Fabrication Technique For Gallium Nitride Substrates,” Patent No. 8703623, April, 22, 2014.
   11. D. Chen, F. Gao, B. Lu and T. Palacios, “Vertical Nitride Semiconductor Device with Conductive Buffer Layers,” Application No. 14/396507, May 2014.
   12. B. Lu and T. Palacios, “Enhancement-Mode Nitride Transistor,” Patent No. 8759876, June 24, 2014.
   13. T. Fujishima and T. Palacios, “Aluminum Nitride Based Semiconductor Devices,” Application No. 14/367385, June 2014.
   14. T. A. B. Mojena, F.C. Gomez, J.M. Rodrigo, T. Palacios and J.P. Ayala, “New Structures for GaN Vertical Transistors,” Application No. PCT/ES2014/070859, June 2014.
   15. Y. Zhang and T. Palacios, “Dielectric Technology for Nitride Semiconductor Devices,” Application No. 62/056724, September 2014.
   16. D. Chen, F. Gao, B. Lu and T. Palacios, “Passivation Technique for Wide Bandgap Semiconductor Devices,” Application No. 14/396507, October 2014.
   17. L. Yu, H. Wang, T. Palacios, “Graphene-MOS2 Hybrid Technology for Large-Scale Two Dimensional Electronics,” Application No. PCT/US2014/063903, November 2014.
   18. T. Palacios, “Process and Apparatus for Fabrication of Layer Materials and Devices,” Application No. PCT/ES2014/070859, November 2014.
   19. J.W. Chung and T. Palacios, “High-performance Nitride Semiconductor   
       Devices,” Patent No. 8921892, December 30, 2014.
   20. B. Lu, M. Sun, and T. Palacios, “Vertical Nitride Semiconductor Device,” Application No. 14/662837, March 2015.
   21. B. Lu, E. Matioli and T. Palacios, “Semiconductor Devices Having a Recessed Electrode Structure,” Patent No. 9041003, May 26, 2015.
   22. B. Lu, M. Sun, and T. Palacios, “Semiconductor Structure and Recess Formation Etch Technique,” Application No. 14/442546, May 2015.
   23. Bin Lu, Elison Matioli, and Tomas Palacios, “Diode Having Trenches in a Semiconductor Region” Patent # 9393538, March 2016.
   24. Tatsuya Fujishima, and Tomas Palacios, “Aluminum Nitride Based Semiconductor Devices” Patent# 9337301, May 2016.
   25. T. Palacios, H. Wang, L. Yu, “Electronics Including Graphene-Based Hybrid Structures,” Application No. 16686, Serial#15/034051, Patent Cooperation Treaty, Patent Application Pending filed, May 2016.
   26. U. Radhakrishna, S. Joglekar, and T. Palacios, “New Technology to Increase Transistor Linearity” Patent Application Pending, December 2016.
   27. D. S. Lee, T. Palacios, “Improving Linearity in Semiconductor Devices,” Application No. PCT/US2014/019520, February 2014. US Patent No: 97/11594, 7/18/2017.
   28. M. Dresselhaus, J.Kong, Y. Lin, X. Ling, T. Palacios, “Universal Methodology to Synthesize Diverse Two-Dimensional Heterostructures,” Application No. 18252, Serial#15/373687, Utility Patent 9812525 B2.
   29. F Gao, D Chen, B Lu, TA Palacios - , “Passivation technique for wide bandgap semiconductor devices,” US Patent 9,634,111, 2017
   30. Yuhao Zhang, and T. Palacios, “Enhancement-Mode Transistors with Increased Threshold Voltage,” US 9704959, 2017.
   31. B Lu, M. Sun, TA Palacios, “Structures for nitride vertical transistors,“ U.S. Patent Application No.: 15/388,963, 2017
   32. E de Nazareth Matioli, TA Palacios, “Reducing leakage current in semiconductor devices,” US Patent 9,911,813, 2018
   33. TA Palacios, S Jayanta-Joglekar, U Radhakrishna, “High-linearity transistors,” US Patent App. 15/849,219, 2018, *Pending*
   34. RM Radway, TA Palacios, “GaN devices fabricated via wafer bonding,” US Patent App. 15/489,083, *Pending*
   35. GaN-based CMOS Logic on a Si Substrate - by Elaine McVay, and Tomas Palacios - Patent disclosure submitted to TLO on 3/4/2019
   36. Efficient Charge Transfer Doping Technology for P-Type GaN - by Nadim Chowdhury and Tomas Palacios - Patent disclosure submitted to TLO on 4/4/2019
   37. CE Mackin, TA Palacios, “Sensor systems and related fabrication techniques,” US Patent App. 15/773,247, 2018, US Patent No: 15/773247, 11/8/2018
   38. M. Sun, TA Palacios, “Structures for nitride vertical transistors,“ U.S. Patent Application No.: 15/388,963, US Patent No: 10/256352, 4/9/2019.
   39. Tomas Apostol Palacios, Sameer Jayanta-Joglekar, Ujwal Radhakrishna, “High-linearity transistors,” US Patent office no. 10/439059, Application number15849219, 8/10/2019.
   40. Y. Lin, X. Ji, J. Kong, T. Palacios, “Ultrasensitive thermo-mechanical bolometer,” US Patent office no. 16/449410, 12/16/2019
   41. W. Gallagher, Hpstaken, M., Lee, K-T, Palacios, T. Piedra, D. Sadana, D., “Control of Current Collapse in Thin Pattern GaN,” US Patent office No. 16/219300, 1/23/2020.
   42. Bin Lu, Tomas Palacios, Ling Xia, Mohamed Azize, “Transistor structure having buried island regions,” Patent office no. 10566192, 2/18/2020.
   43. SEMICONDUCTOR DEVICE WITH ELECTRIC FIELD MANAGEMENT STRUCTURES Invention disclosure: FinFETs with Inter-Fin Ion Implantation Invention disclosure: Improved Contacts in Vertical Transistors Invention disclosure: Low-temperature synthesis of two dimensional materials Invention disclosure: High Aspect Ratio Fin/Trench Technology (2022)
2. **PROFESSIONAL REGISTRATION:**

None

1. **MAJOR NEW PRODUCTS, PROCESSES, DESIGNS, OR SYSTEMS:**

Most of the patents in section 11 have been licensed to semiconductor companies and they are being used in commercial products. For example, Finwave Semiconductor has recently announced commercial GaN-based RF and power transistors based on some of the technologies originally developed at MIT by Palacios’s group. More information can be found in Finwave's website: <http://finwavesemi.com>

1. **BOOKS**
2. **PAPERS IN REFEREED JOURNALS**
3. Palacios, T., F. Calle, E. Monroy, F. Naranjo, M.A. Sánchez-García, E. Calleja and E. Muñoz, “Wet Etching of GaN grown by molecular beam epitaxy on Si(111),” Semic. Sci. and Tech., vol. 15, pp. 996-1000, 2000.
4. Monroy, E., F. Calle, T. Palacios, J. Sánchez-Osorio, M. Verdú, F.J. Sánchez, M.T. Montojo, F. Omnès, Z. Bougrioua, and I. Moerman, “Reliability of Schottky contacts on AlGaN,” Phys. Stat. Sol. (a), 188, no. 1, pp. 367-370, 2001.
5. Jiménez Riboo, R. J., E. Rodríguez-Cañas, M. Vila, C. Prieto, F. Calle, T. Palacios, M.A. Sánchez, F. Omnès, O. Ambacher, B. Assouar and O. Elmazria, “Hypersonic characterization of sound propagation velocity in AlGaN thin films,” J. Appl. Phys., vol. 92, pp. 6868-6874, 2002.
6. Sánchez, A. M., F.J. Pacheco, S.I. Molina, P. Ruterana, F. Calle, T. Palacios, M.A. Sánchez-García, E. Calleja and R. García, “AlN Buffer Layer Thickness Influence on Inversion Domains in GaN/AlN/Si (111),” Mat. Sci. Eng. B., vol. 93, 1-3, pp. 181-184, 2002.
7. Monroy, E., F. Calle, R. Ranchal, T. Palacios, M. Verdú, F.J. Sánchez, M.T. Montojo, M. Eickhoff, F. Omnès, Z. Bougrioua and I. Moerman, “Reliability of Pt and Ni based Schottky contacts on AlGaN,” Semic. Sci. and Tech., vol. 17, no. 9, L47-L54, 2002.
8. Rubio-Zuazo, J., R.J. Jiménez-Rioboó, E. Rodríguez-Cañas, C. Prieto, T. Palacios, F. Calle, E. Monroy and M.A. Sánchez-García, “Brillouin Characterization of the Acoustic waves Phase-Velocity in AlxGa1-xN Epilayers,” Mat. Sci. Eng. B., vol. 93, 1-3, pp. 168-171, 2002.
9. Snoeys, W., T. Palacios and G. Anelli, “New NMOS Layout Structure for Radiation Tolerance,” IEEE Trans. Nuc. Sci., vol. 49, 4, pp. 1829-1833, 2002.
10. Monroy, E., T. Palacios, O. Hainaut, F. Omnès, F. Calle, and J.F. Hochedez, “Assessment of GaN metal-semiconductor-metal photodiodes for high-energy ultraviolet photodetection,” Appl. Phys. Lett., vol. 80, 17, pp. 3198-3200, 2002.
11. Palacios, T., F. Calle, E. Monroy, and E. Muñoz, “Submicron Technology for III-Nitride Semiconductors,” J. Vac. Sci. & Tech. B, vol. 20, pp. 2071-2074, 2002.
12. Palacios, T., E. Monroy, F. Calle, and F. Omnès, “High-responsivity submicron MSM UV detectors,” Appl. Phys. Lett, vol. 81, pp. 1902-1904, 2002.
13. Palacios, T., F. Calle, E. Monroy, J. Grajal, M. Eickhoff, O. Ambacher and C. Prieto, “Nanotechnology for SAW devices on AlN Epilayers,” Mat. Sci. Eng. B., vol. 93, 1-3, pp. 154-158, 2002.
14. Palacios, T., F. Calle, E. Monroy, and F. Omnès, “Novel approaches for metal-semiconductor-metal GaN UV photodetectors,” Phys. Stat. Sol., no. 1, pp. 476-479, 2002.
15. Bougrioua, Z., I. Moerman, L. Nistor, B. van Daele, E. Monroy, T. Palacios, F. Calle and M. Leroux, “Engineering of an Insulating Buffer and Use of AlN Interlayers: Two Optimisations for AlGaN/GaN HEMT-Like Structures,” Phys. Stat. Sol. (a), no. 3, pp. 93-100, 2003. [[1]](#footnote-1)\*\*
16. Buttari, D., A. Chini, T. Palacios, R. Coffie, L. Shen, H. Xing, S. Heikman, L. McCarthy, A. Chakraborty, S. Keller, and U.K. Mishra, “Origin of etch delay time in Cl2 dry etching of AlGaN/GaN structures,” Appl. Phys. Lett., vol. 83, 23, pp. 4779-4781, 2003.
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    103. Bonner, R.W., T. Desai, F. Gao, X. Tang, T. Palacios, S. Shin, and M. Kaviani, “Die level thermal storage for improved cooling of pulsed devices,” Proc. Of the 27th Annual IEEE Semiconductor Thermal Measurement and Management Symposium (SEMI-THERM), pp. 193-197, 20-24 March 2011. (Oral Presentation)\*\*
    104. Palacios, T., “Graphene Devices and Systems,” Graphene Week 2011, Obergurgl, Austria, 4 pages, 24-30 April 2011. (Invited)\*\*
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    111. Palacios, T., “High Frequency Electronics Based on GaN and Graphene,” 9th Topical Workshop on Heterostructure Microelectronics (TWHM), Gifu-City, Japan, 28-30th, Aug. 2011. (Invited) \*\*
    112. Palacios, T., “Graphene-Based Electronics for RF Communications and Sensing,” Ohio Materials Week, Columbus, OH, September 12-14, 2011. (Plenary Talk)\*\*
    113. Saadat, O. I., and T. Palacios, “Low Temperature Gate Dielectric Deposition for Recessed AlGaN/GaN MIS-HEMTs,” 41st European Solid-State Device Research Conference (ESSDERC), Helsinki, Finland, pages 287-290, 12-16, Sept. 2011. (Oral Presentation) [[54]](#footnote-54)\*\*
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    117. Palacios, T., “GaN Transistors: Revolutionizing Energy Processing,” fourth International Symposium on Advanced Plasma Science and its Applications to Nitrides and Nanomaterials, Aichi, Japan, March 4-8, 2012. (Invited)\*\*
    118. Palacios, T., “Graphene-based Electronics for RF Applications,” 7th German Microwave Conference (GeMiC), Ilmenau, Germany, pp. 8-9, 12-14, March 2012. (Invited)\*\*
    119. Palacios, T., “Graphene-based Electronics for RF Communications and Sensing,” 2012 Spring Meeting of the Materials Research Society, San Francisco, CA, April 9-13, 2012. (Invited). [[56]](#footnote-56)\*\*
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    121. Palacios, T., “Graphene and Other Layered Materials for Advanced Communications and Sensing,” Nanotechnology for Defense Conference, Las Vegas, NV, August 7, 2012. (Invited)\*\*
    122. Palacios, T., “Graphene-based Electronics for RF Communications and Sensing,” Crystal and Graphene Science Symposium, Waltham, MA, September 9, 2012. (Invited)\*\*
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    124. Radhakrishna, U., L. Wei, D.-S. Lee, T. Palacios, and D. Antoniadis, “Physics-based GaN HEMT Transport and Charge Model: Experimental Verification and Performance Projection,” International Electron Device Meeting, San Francisco, CA, pp. 13.6.1 - 13.6.4, 10-13, December 2012. \*\*
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    130. Herring, P. K., A. L. Hsu, Y. C. Shin, S. J. Ha, K. K. Kim, J. Kong, T. Palacios, and P. Jarillo-Herrero, “Mid-Infrared Graphene Photoresponse,” March Meeting of the American Physical Society, 1 page, 18-22, March 2013. \*\*
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    132. Palacios, T., “GaN Devices for the Next Generation of Power Electronics,” Spring Meeting of the Materials Research Society, San Francisco, CA, April 4, 2013. (Invited)\*\*
    133. Palacios, T., “Atom Thick Materials for the Next Revolution in Electronics,” Graphene 2013, Bilbao, Spain, p. 136, 23 April 2013. (Invited) \*\*
    134. Palacios, T., “Thoughts on Graphene Research Status, Funding and Priorities,” Graphene 2013, Bilbao, Spain, April 23, 2013. (Invited) [[57]](#footnote-57)\*\*
    135. Palacios, T., “Two-Dimensional Crystals for Ubiquitous Electronics,” Meeting of the Electrochemical Society, Toronto, Canada, 1 page, 15, May 2013. (Invited)\*\*
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    137. Palacios, T., “Gallium Nitride: The Silicon of the 21st Century,” WOCSDICE 2013, Warnemunde, Germany, pp. 39-40, 27 May 2013. (Invited) \*\*
    138. Palacios, T., “Short Course: New Circuits and Systems Based on 2D Materials,” Short Course in the Device Research Conference, South Bend, IN, June 22-24, 2013 (Invited)\*\*
    139. Zhang, Y., M. Sun, S. J. Joglekar, and T. Palacios, “High Threshold Voltage in GaN MOS-HEMTs by Fluorine Plasma and Gate Oxide,” Device Research Conference, South Bend, IN, 4 pages, Applied Physics Letters, 22-24 June 2013.\*\*
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    144. Gao, F., and T. Palacios, “On the Origin of Surface Trapping Effects in AlGaN/GaN HEMTs,” 10th International Conference on Nitride Semiconductors, Washington, DC, August 25-30, 2013.\*\*
    145. Radhakrishna, U., T. Imada, T. Palacios, and D. Antoniadis, “MIT Virtual Source GaN HEMT – High Voltage (MVSH-HV) model: A physics based compact model for HV-GaN HEMTs,” 10th International Conference on Nitride Semiconductors, Washington, DC, August 25-30, 2013. \*\*
    146. Sun, M., B. Lu, and T. Palacios, “An Etch-Stop Barrier Structure for GaN Normally-off High Electron Mobility Transistors,” 10th International Conference on Nitride Semiconductors, Washington, DC, pp. 369-371, 25-30 August 2013.\*\*
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    152. Lu, B., M. Sun, and T. Palacios, “Interface Analysis and Modeling of Normally-Off GaN MISFETs with an Etch-Stop-Barrier Structure,” 10th International Conference on Nitride Semiconductors, Washington, DC, August 25-30, 2013. \*\*
    153. Saadat O. I., and T. Palacios, “Mobile-ion contamination and its impact on AlGaN/GaN MOSHEMTs,” 10th International Conference on Nitride Semiconductors, Washington, DC, August 25-30, 2013. \*\*
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    157. Palacios, T., “Atom-Thick Materials for the Next Electronics Revolution,” MIT Industrial Liaison Program Conference, Cambridge, MA, 1 page, 14 November 2013. (Invited)\*\*
    158. Boles, T., L. Xia, A. Kaleta, C. McLean, O. Saadat, and T. Palacios, “Hafnium Oxide ALD Passivation of GaN MISHEMTs,” MACOM 26th Engineering Conference, October 21, 2013. \*\*
    159. Palacios, T., “The Future of Nitrides (and other Extreme Electronic Materials),” MACOM 26th Engineering Conference, October 21, 2013. (Plenary) \*\*
    160. Lin, Y., X. Ling, Y.-Hsien Lee, M. Dresselhaus, J. Kong, and T. Palacios, “Optical Properties of Monolayer MoS2 by Chemical Vapor Deposition at High Carrier Density,” Fall Meeting of the Materials Research Society, Boston, MA, December 1-6, 2013.\*\*
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    162. Rakheja, S., H. Wang, T. Palacios, I. Meric, K. Shepard, and D. Antoniadis, “A Unified Charge-Current Compact Model for Ambipolar Operation in Quasi-Ballistic Graphene Transistors: Experimental Verification and Circuit-Analysis Demonstration,” International Electron Device Meeting (IEDM), Washington, DC, pp. 5.5.1-5.5.4, 9-11 December 2013. [[59]](#footnote-59)\*\*
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    164. Palacios, T., "Two-Dimensional Materials: Challenges and Opportunities," Molecular Materials Meeting (M3 Conference), Biopolis, Singapore, January 2014. (Invited talk)\*\*
    165. Palacios, T. "New Applications of 2D Materials," WOCSEMMAD, San Antonio, TX, February 16-19 2014. (Invited talk)\*\*
    166. Zhang, X., H. Wang, Y. Song, A. Hsu, J. Kong, M.S. Dresselhaus, T. Palacios, "Surface fluorination on graphene field effect transistors,” APS March Meeting, Denver, CO, p. 37007, March 2014.\*\*
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    168. Zubair, A.,O.I. Saadat, Y. Song, J. Kong, M.S. Dresselhaus, and T. Palacios, "Vertical Graphene-base Transistor on GaN Substrate," Bulletin of American Physical Society, Denver, CO., vol. 59, No. 1, 3-7 March 2014.\*\*
    169. Palacios, T., "2D Semiconductors: The Road from Physics and Materials to Systems," MRS Spring Meeting, San Francisco, CA, 2014. (Invited talk) \*\*
    170. Palacios, T., "Graphene-based Mid-Infrared Detector Array for Night Vision and Sensing Applications," Government Microcircuit Applications and Critical Technology Conference, GOMACTECH, April 2014. \*\*
    171. 筑波大数理1，産総研ナノシステム2，産総研計測フロンティア3，物質・材料研究機構, 上殿 明良，石橋 章司，大平 永康3，鈴木 良，角谷 正友，T. Palacios, "Studies of an optical response of point defects and electric fields in a crystal singularity by means of positron annihilation," Meeting of the Japanese Applied Physics Society, May 5, 2014.\*\*
    172. Palacios, T., "Recent Progress on Two-Dimensional Materials for RF Communications and Sensing," SPIE Defense, Security and Sensing Meeting, Baltimore, MD, pp. 9083-2, 6-8 May 2014. (Invited talk) [[60]](#footnote-60)\*\*
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    180. Yu, L., A. Zubair, T. Palacios, "High-performance WSe2 CMOS devices and integrated circuits,” Graphene Week, Sweden, Gothenburg, June 2014. \*\*
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    187. Matioli, E., and T. Palacios, "Room Temperature Ballistic Transport in III-Nitride Heterostructures," International Workshop on Nitride Semiconductor, Wrocław, Poland, p. 73, 24-29 August 2014. \*\*
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    190. Joglekar, S., M. Azize, and T. Palacios, "Impact of Al2O3 Passivation on the Surface Properties and Schottky Barrier Height of AlGaN/GaN Transistors," International Workshop on Nitride Semiconductor, Wrocław, Poland, p. 179, 24-29 August 2014. Best student paper award. \*\*
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    193. Palacios, T., "Rump Session on the future of GaN Power Electronics," International Workshop on Nitride Semiconductors, IWN, Wroclaw, Poland, p. 15, 24-29 August 2014. (Chair and organizer) \*\*
    194. Wong, H. Y., N. Braga, R. V. Mickevicius, F. Gao, and T. Palacios, "Study of AlGaN/GaN HEMT Degradation through TCAD Simulations," International Conference on Simulation of Semiconductor Processes and Devices, Yokohama, Japan, pp. 97-100, 9-11 September 2014. [[62]](#footnote-62)\*\*
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    196. Lin, Y., X. Ling, J. Kong, T. Palacios, M. S. Dresselhaus, "Selective Generation of Excitons and Trions in Single-Layer MoS2 by Solvent-Based Dielectric Screening," MRS 2014 Fall Meeting, Boston, MA, pp. 5569-5576, December 2014.\*\*
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  40. Q. Xie, N.Chowdhury, A.Zubair, M.S.Lozano, J.Lemettinen, M.Colangelo, O.Medeiros, I. Charaev, K.K.Berggren, P.Gumann, D.Pfeiffer, T.Palacios, “NbN-Gated GaN Transistor Technology for Applications in Quantum Computing Systems,”IEEE, 2021 Symposium on VLSI Technology, 2021.
  41. T. Palacios, “The Extreme Materials Revolution: From Computers in Venus to Synthetic Cells ,“ Virtual Workshop on Materials Science and Advanced Electronics Created by Singularity, Feb. 2nd, 2021 (Invited speaker)
  42. T. Palacios, “From Lab to Ventures: IP Management and Business Plans in Nanoelectronics,” 2nd ULTIMATE Workshop, EU Graphene Flagship, April 22nd, 2021 (Invited speaker)
  43. T. Palacios, “Vertical Power Devices… Where is the Limit?,” Compound Semiconductor Week, May 12th, 2021 (Invited speaker)
  44. T. Palacios, “GaN 2.0: Lateral CMOS Power Devices and Low-cost Ver7cal Devices, “ 2022 International Symposium on Power Semiconductors Devices and IC’s (ISPSD), May 31st, 2021 (Plenary speaker)
  45. T. Palacios, “New Materials and Devices for Edge Intelligence,” Solid State Devices and Materials Conference (SSDM), Sept. 6, 2021 (Plenary speaker)
  46. T. Palacios, “Electronics 5.0: The Critical Infrastructure to Build the Future,” MIT’s annual Undergraduate Research and Technology Conference (URTC), October 9, 2021 (Invited speaker)
  47. T. Palacios, “The Coming of Age for Two-Dimensional Electronics,” Virtual Graphene Conference, November 2-5, 2021 (Plenary Speaker)
  48. T. Palacios, “Graphene-based Sensors for Real-time Monitoring of Physiological Parameters,” Materials Research Society Fall Meeting, Boston, Dec. 1st, 2021 (Invited speaker)
  49. T. Palacios, “New Semiconductor Materials: The Critical Infrastructure to Build the Future,” International Conference on Materials and Systems for Sustainability, Nagoya (Japan) Nov. 5th, 2021 (Plenary speaker)
  50. R. Bhattacharya, P. C. Shih, T. Palacios and J. Browning, &#34;Field Emission Characteristics of GaN Arrays,&#34; International Virtual Exchange Conference IVEC 2022
  51. Mengyang Yuan, Qingyun Xie, John Niroula, Nadim Chowdhury, Mohamed Fadil Isamotu, and Tom&#225;s Palacios, &#34;High Temperature Robustness of Enhancement- Mode p-GaN-Gated AlGaN/GaN HEMT,&#34; 2022 IEEE Workshop on Wide Bandgap Power Devices and Applications WiPDA 2022.
  52. J. Zhu, T. Palacios, &#34;Highly-scaled, high-performance transistors based on wafer-scale monolayer MoS2,&#34; SRC TechCON 2022
  53. Mantian Xue, Charles Mackin, Wei-Hung Weng, Jiadi Zhu, Yiyue Luo, Shao- Xiong Lennon Luo, Ang-Yu Lu, Marek Hempel, Elaine McVay, Jing Kong, Tom&#225;s Palacios, &#34;Integrated biosensor platform based on graphene transistor arrays for real-time high-accuracy ion sensing,&#34; MRS Fall Meeting, 2022.
  54. Pao Chuan Shih, Tao Zheng, Maria J. Arellano Jimenez, Bruce Gnade, Akintunde I. Akinwande, and Tom&#225;s Palacios, &#34;GaN Field Emitter Arrays with J A of 10 A/cm2 at V GE = 50 V for Power Applications,&#34; 2022 International Electron Device Meeting (IEDM), Dec. 2022
  55. Qingyun Xie, Mengyang Yuan, John Niroula, James A. Greer, Nitul S. Rajput, Nadim Chowdhury, and Tom&#225;s Palacios, &#34;Highly-Scaled Self-Aligned GaN Complementary Technology on GaN-on-Si Platform,&#34; 2022 International Electron Device Meeting (IEDM), Dec. 2022. *Paper selected for publication in IEEE Trans. on Electron Devices.*

1. **OTHER MAJOR PUBLICATIONS**
   1. Palacios, T., F. Calle, E. Monroy, J. Grajal, M. Eickhoff, O. Ambacher and C. Prieto: “Nanotechnology for SAW devices on AlN Epilayers,” 11th International Travelling Summer School in Microwaves and Lightwaves, Materials Science and Engineering vol. 93, pp. 154-158, Madrid, Spain, 7-12 July 2001. (Oral Presentation).
   2. Palacios, T., L. Shen, S. Keller, A. Chakraborty, S. Heikman, D. Buttari, S. P. DenBaars, and U. K. Mishra: “GaN-spacer HEMTs: the impact of AlGaN in the ve of AlGaN/GaN HEMTs,” 11th Advanced Heterostructure Workshop, Hawaii, HI, December 2004. (Oral Presentation).
   3. Rajan, S., T. Palacios, S. P. DenBaars, and U. K. Mishra: “Electron Mobility in Graded AlGaN Layers,” WOCSEMMAD 2005, Miami, FL, February 2005. (Oral Presentation).
   4. Suh, C.S., T. Palacios, S. Rajan, A. Chini, E. Snow, Y. Dora, L. Shen, C. Poblenz, N. Fichtenbaum, A. Chakraborty, S. Keller, S. DenBaars, J. Speck, and U. K. Mishra: “E-mode GaN HEMTs,” WOCSEMMAD 2006, Phoenix, AZ, pp. 428-430, 20-22 February 2006. (Oral Presentation).
   5. Palacios, T., C.-S. Suh, E. Snow, Y. Dora, and U. K. Mishra: “GaN HEMT’s enhanced by Fluorine Treatment,” WOCSEMMAD 2006, Phoenix, AZ, pp. 428-430, 20-22 February 2006. (Oral Presentation).
   6. Palacios, T., Z. Xu, J. W. Chung: “Drain Delay: The Ultimate Limit for the Frequency Performance of AlGaN/GaN HEMTs,” 12th Advanced Heterostructure Workshop, Kohala Coast, HI, 3-8 December 2006. (Oral Presentation).
   7. Palacios, T. and Mishra, U.K., “Modeling and Simulation of AlGaN/GaN High Electron Mobility Transistors,” chapter in Nitride Semiconductor Devices: Principles and Simulation, edited by Piprek, J., Wiley-VCH, chapter 10, pp. 213, March 2007.
   8. Palacios, T., “mm-wave Initiative for Carbon Electronics,” DARPA Workshop on Carbon-Based Ultra-High-Speed Electronics for Wafer-Scale Integration, Arlington, VA, 19 April 2007. (Invited)
   9. Palacios, T., “Steps towards 300 GHz GaN amplifiers,” WOCSEMMAD 2008, Palm Springs, CA, p. 3, 17-20 February 2008. (Oral Presentation).
   10. Palacios, T., “New structures for AlGaN/GaN High Electron Mobility Transistors,” chapter in Advanced Semiconductors Materials and Devices Research: III-Nitrides and SiC, edited by Dr. Ho-Young Cha, Research Signpost, pp. 103, 104, 107, 158, October 2008.
   11. Palacios, T., “Recent Progress Towards sub-mm wave GaN Transistors,” WOCSEMMAD ’09, Fort Myers, FL, p. 3, February 15-18, 2009. (Oral Presentation).
   12. Wang, H., A. Hsu, J. Wu, D. Nezich, J. Kong, and T. Palacios, “Workshop on Graphene Nanoelectronics,” Army Research Laboratory, Adelphi, MD, pp. 16, 12-13 August 2009. (Invited). [[74]](#footnote-74)\*\*
   13. Palacios, T., A. Hsu, and H. Wang, “Applications of Graphene Devices in RF Communications,” IEEE Communications Magazine, vol. 48, pp. 122-128, 2010. (Invited).
   14. Palacios, T. and Mishra, U.K., “AlGaN/GaN High Electron Mobility Transistors,” chapter in Comprehensive Semiconductor Science and Technology, edited by Dr. Pallab Batthacharia, Elsevier, March 2011.
   15. Palacios, T, “Graphene-Based Electronics for RF Communications and Sensing,” Winter Technical Session, MTT –S Distinguished Microwave Lectures, Phoenix, AZ, IEEE Microwave Magazine pp. 114-125, 15 January 2011. (Invited).
   16. Lee, D. S., and T. Palacios, “500 GHz transistors based on GaN… when and how?,” Compound Semiconductor Magazine, pp. 33-35, August/September 2011. (Invited).
   17. Cordier, Y., Fujishima, T., Lu, B., Matioli, E., and Palacios, T., "Nitride-based electron devices for high-power/high-frequency applications," chapter in III-Nitride Semiconductors and their Modern Devices, edited by Dr. Bernard Gil, Oxford University Press, December 2013.
   18. Piedra, D., E. Matioli, B. Lu, and T. Palacios, "Nanowire GaN transistors," chapter in Power GaN Devices, edited by Gaudenzio Meneghesso, Enrico Zanoni and Matteo Meneghini, December 2015.
   19. Hu, J.; Stoffels, S., Lenci, S.,Decoutere, S.,Groeseneken, G. Palacios, T.: “High Performance and Stable Au-free AlGaN/GaN Lateral Power Diode on 200-mm Silicon Substrate,” submitted to IEEE Electron Device Letters (Sept. 2016).
   20. Aklimi, E., D. Piedra, K.Tien, T.Palacios, K. Shepard, “Hybrid CMOS/GaN 40-MHz Multiphase 20V:1V DC-DC Buck Converter,” submitted to IEEE Journal of Solid State Circuits (Oct. 2016).
   21. Lee, K.T., C. Bayram, D. Piedra, E. Sprogis, H. Deligianni, B. Krishnan, G. Papasouliotis, A. Paranjpe, E. Aklimi, K. Shepard, W.J. Gallagher, T. Palacios, and Devendra K. Sadana, “Heterogeneous Integration of GaN Devices on 200 mm Si for Scalable CMOS Technology,” IEEE Electron Device Letters (Oct. 2016).
   22. Hou, H.W., Z. H. Liu, J. H. Teng, T. Palacios, and S. J. Chua, “A sub-THz broadband detector based on a GaN HEMT with nano antennas,” IEEE Electron Device Letters (Oct. 2016).
   23. Xing, W.; Liu, Z.; Qiu, H.; Ng, G. I.; and Palacios, T: “Planar-Nanostrip-Channel InAlN/GaN HEMTs on Si with Improved gm and fT Linearity,” IEEE Electron Device Letters (Dec. 2016). [[75]](#footnote-75)\*\*
   24. Ruzzarin, M., M. Meneghini, D. Bisi, M. Sun, T. Palacios, G. Meneghesso, and E. Zanoni, “Pulsed Performance and Degradation of GaN-on-GaN Vertical Junction Field Effect Transistor,” submitted to IEEE Trans. Of Electron Devices (Dec. 2016).
   25. Hou, H., Zhihong, L., Jinghua, T., T. Palacios, and S.J. Chua, “Optical Tuning of the Terahertz Plasmonic Response in a Graphene Disk Array,” IEEE Electron Device Letters (Dec. 2016).
   26. H. W. Hou, Z. Liu, J. H. Teng, T. Palacios, and S. J. Chua, “Enhancement of responsivity for a transistor terahertz detector by a Fabry-Pérot resonance-cavity,” IEEE Electron Device Letters (Dec. 2016).
   27. A. Zubair, A. Nourbakhsh, J.-Y. Hong, Y. Song, M.Qi, D. Jena, J. Kong, M. S. Dresselhaus, T. Palacios,”Graphene-on-GaN Hot Electron Transistor,” Applied Physics Society March Meeting 2017, New Orleans, Louisiana.
   28. A. Zubair, A. Nourbakhsh, J.-Y. Hong, Y. Song, M.Qi, D. Jena, J. Kong, M. S. Dresselhaus, T. Palacios, “Graphene-base Hot Electron Transistor with GaN emitter,” International Conf. on Nitride Semiconductors 2017, Strasbourg, France.
   29. A. Nourbakhsh, A. Zubair, R. N. Sajjad, A. Tavakkoli K. G. , X. Ling, J. Kong, M. S. Dresselhaus, D. Antoniadis and T. Palacios , “Scaling and carrier transport properties of monolayer MoS2 transistors,” Applied Physical Society March Meeting 2017, New Orleans, Louisiana.
   30. P. Wei, A. Zubair, T. Palacios, J. Moodera, “Towards valley transistor in MoS2/EuS through interfacial magnetic exchange field,” Applied Physical Society March Meeting 2017, New Orleans, Louisiana.
   31. H. Okumura, S. Suihkonen, J. Lemettinen, A. Uedono, and T. Palacios, “AlN metal-semiconductor field-effect transistors using Si-ion implantation,”2017 International Conference on Solid State Devices and Materials, Sendai, pp. 641-642.
   32. Y. Zhang, D. Piedra, M. Sun, J. Hennig, A. Dadgar, and T. Palacios, “Vertical High-Voltage GaN pin Diodes on Si,” 2016 Compound Semiconductor Week, Berlin, Germany, May 14-18 2017.
   33. W. Xing, …, and T. Palacios, “Fin-like nanowire-channel InAlN/GaN HEMTs on Si with Improved gm and fT linearity,” 9th International Conference on Materials for Advanced Technologies, 2017, 18-23 June 2017, Singapore.
   34. M. Meneghini, M. Ruzzarin, D. Bisi, M. Sun, T. Palacios, G. Meneghesso, and E. Zanoni, “Dynamic performance and stability of GaN-on-GaN Vertical Fin-FETs,” Fall Meeting of the Materials Research Society, Boston, MA. Nov. 2017.
   35. H. Okumura, S. Suihkonen, J. Lemettinen, A. Uedono, and T. Palacios, “AlN Metal-Semiconductor Field-Effect Transistors Using Si-Ion Implantation,” Fall Meeting of the Materials Research Society, Boston, MA. Nov. 2017.
   36. Zubair, A. Nourbakhsh, J.-Y. Hong, M. Qi, J. Kong, D. Jena, M. S. Dresselhaus, and T. Palacios, “GaN Hot Electron Transistors Based on a van der Waals Base-Collector Barrier,” Fall Meeting of the Materials Research Society, Boston, MA. Nov. 2017.
   37. M. F. Romero, A. Boscá, J. Martínez, J. Pedrós, T. Palacios, F. Calle, “Effects of mist exposure on SiN passivated AlGaN/GaN-based MISHEMTS with and without graphene top layer,” Workshop on Compound Semiconductor Devices and Integrated Circuits Las Palmas de Gran Canarias 21-24 May 2017.
   38. Y. Zhang, M. Sun, D. Piedra, J. Hu, Z. Liu, Y. Lin, X. Gao, K. Shepard, T. Palacios “1200 V GaN Vertical Fin Power Field-Effect Transistors”, 2017 International Electron Devices Meeting (IEDM 2017), 9.2, Dec 2017. (highlight by multiple media including MIT News).
   39. S. Joglekar, U. Radhakrishna, D. Piedra, D. Antoniadis, and T. Palacios “Linearity Enhancement of AlGaN/GaN HEMTs by Device-level VT Engineering for gm compensation”, 2017 International Electron Devices Meeting (IEDM 2017), 9.2, Dec 2017.
   40. E. Mattioli, B. Lu, D. Piedra, T. Palacios, “Chapter 6: GaN-Based Nanowire Transistors”. In M. Meneghini et al. (eds.), Power GaN Devices (pp. 123-144). Springer International Publishing Switzerland 2017.
   41. Nourbakhsh, Amirhasan; Yu, Lili; Lin, Yuxuan; Hempel, Marek; Shiue, Ren-Jye; Englund, Dirk; Palacios, Toms; “Heterogeneous Integration of 2D Materials and Devices on a Si Platform, chapter in Beyond-CMOS Technologies for Next Generation Computer Design,” Springer, 43-84 (2019).
   42. Ran Li, Xiaoyuan Ma, Jianmin Li, Jun Cao, Hongze Gao, Tianshu Li, Xiaoyu Zhang, Lichao Wang, Qinghong Zhang, Gang Wang, Chengyi Hou, Yaogang Li, Tomas Palacios, Yuxuan Lin, Hongzhi Wang, Xi Ling, “Flexible and High-Performance Electrochromic Devices Enabled by Self-Assembled 2D TiO2/MXene Heterostructures,” Research Square, pg. 1-28, (2020). [[76]](#footnote-76)\*\*
   43. E McVay, A Zubair, Y Lin, A Nourbakhsh, T Palacios – “Impact of $ Al\_2O\_3 $ Passivation on the Photovoltaic Performance of Vertical $ WSe\_2 $ Schottky Junction Solar Cells,” arXiv preprint arXiv:2006.16517, 2020.re. [[77]](#footnote-77)\*\*
   44. Highly-Scaled GaN Complementary Technology on GaN-on-Si Platform by Q.

Xie, M. Yuan, J. Niroula, J. A. Greer, N. S. Rajput, N. Chowdhury, T. Palacios. *Invited paper to Trans. on Electron Devices.*

* 1. Low thermal budget synthesis of monolayer molybdenum disulfide for silicon back-end-of-line integration on 200 mm platform by Jiadi Zhu, Ji-Hoon Park, Steven A. Vitale, Wenjun Ge, Gang Seob Jung, Jiangtao Wang, Mohamed Mohamed, Tianyi Zhang, Maitreyi Ashok, Mantian Xue, Xudong Zheng, Zhien Wang, Jonas Hansryd, Anantha Chandrakasan, Jing Kong, Tomas Palacios, under review (3rd round) in Nature Nanotechnology.

1. **INVITED LECTURES**

September 2005, ISOM, Universidad Politécnica de Madrid, Madrid, Spain.

September 2005, Walter Schottky Institute, Technical University of Munich, Munich, Germany.

March 2007, “Nitride Electronics: New Ideas at the mm-wave Frontier,” Tufts University, Medford, MA; also at University of Notre Dame, Notre Dame, IN; and CEA-Grenoble, Grenoble, France.

July 2007, “Nitride Electronics: The Power of Polarization,” M/A-COM Electronics, Lowell, MA.

August 2007, “Nitride Electronics: The Power of Polarization,” TriQuint Electronics, Dallas, TX; also at NEC, Kyoto, Japan; Toyota Central Research Laboratories, Nagoya, Japan; and Hitachi Electric, Tokyo, Japan.

September 2007, “Nitride Electronics: New Ideas at the mm-wave Frontier,” Northrop Grumman Corporation, Baltimore, MD.

July 2008, “GaN Electronics,” OptoSchool Summer School 2008, Mumbai, India.

February 2009, “GaN Transistors: Redefining the Limits of Electronics,” M/A-COM Electronics, Lovell, MA.

September 2009, “Heterogeneous Integration with Si, the Next Frontier for Electronics,” Yale University, New Haven, CT.

May 2010, “GaN Power Electronics,” National Semiconductors, Santa Clara, CA.

August 2010, “GaN Power Electronics,” Analog Devices, Wilmington, MA.

July 2011, “Graphene-based Electronics for RF Communications and Sensing,” University of Aveiro, Aveiro, Portugal. IEEE Distinguished Microwave Lecture.

August 2011, “Graphene-based Electronics for RF Communications and Sensing,” DNP, Tokyo, Japan.

August 2011, “GaN Transistors: Revolutionizing Electronics from THz to KV,” Sumitomo Electric, Tokyo, Japan.

September 2011, “GaN Transistors: Revolutionizing Electronics from THz to KV,” ROHM Co., Kyoto, Japan.

September 2011, “Graphene-based Electronics for RF Communications and Sensing,” Panasonic, Nagoya, Japan.

September 2011, “GaN Transistors: Revolutionizing Electronics from THz to KV,” Fujitsu Laboratories, Yokohama, Japan.

September 2011, “GaN Power Electronics,” Army Research Laboratory – Fellow Symposium, Baltimore, MD.

October 2011, “Graphene-based Electronics for RF Communications and Sensing,” University of Michigan, Ann Arbor, MI. IEEE Distinguished Microwave Lecture.

October 2011, “GaN Power Electronics,” Texas Instruments - Fellow Conference, Dallas, TX.

February 2012, “Graphene-based Electronics for RF Communications and Sensing,” University of Southern California, Los Angeles, CA. IEEE Distinguished Microwave Lecture.

February 2012, “Graphene-based Electronics for RF Communications and Sensing,” Chalmers University, Gothenburg, Sweden. IEEE Distinguished Microwave Lecture.

February 2012, “GaN Electronics for Sub-mm Wave Applications,” Symposium of the National Nanotechnology Infrastructure Network, University of California, Santa Barbara, CA.

October 2012, “Atom-Thick Materials for the Next Revolution in Electronics,” Physics Colloquium, Harvard University, Cambridge, MA.

October 2012, “Atom-Thick Materials for the Next Revolution in Electronics,” MTT Distinguished Seminar, Dallas, TX.

November 2012, “GaN and Graphene – Extreme Materials for Advanced Electronics,” Cornell University, Ithaca, NY.

November 2012, “Graphene Based Analog Devices,” ITRS Workshop, Webinar.

January 2013, “Graphene and other 2D materials: New Opportunities in Flatland,” MIT-Japan ILP Conference, Tokyo, Japan

September 2013, “GaN and 2D Materials: Extreme Materials for Extreme Frequencies,” International Microwave Symposium, Seattle, WA.

September 2013, “The Impact of Graphene: What is Next after the Hype?,” IPC Technology Market Research Conference, Chicago, IL.

April 2014, "2D Semiconductors: From Devices to Systems," Applied Materials, Santa Clara, CA.

October 2014, "Atom-thick Materials for the Next Revolution in Electronics," Applied Physics Laboratory Symposium, John Hopkins University, Baltimore, MD.

January 2015, "Atom-thick Materials for the Next Revolution in Electronics," IMDEA Nanociencia, Madrid, Spain.

May 2015, "Recent Progress on Electronic Systems Based on 2-Dimensional Materials," Army Research Laboratory, Adelphi, MD.

June 2015, "The Future of Microsystems," Polytechnic University of Madrid, Spain.

June 2015, "Atom-thick Materials for the Next Revolution in Electronics," Instituto de Ingenieria de España, Madrid, Spain.

Feb. 2016, T. Palacios, “How Integration will Enable the Light Bulb of the Future,” Solid State Lighting Symposium, Rayleigh, NC (Invited talk)

Feb. 2016, T. Palacios, “System-level Applications of Two-Dimensional Materials: Challenges and Opportunities,” Princeton University, (Invited talk).

April 2016, T. Palacios, “GaN and Graphene: Extreme Materials for the Future of Electronics,” MIT Spain Club, MIT, (Invited Talk).

April 2016, T. Palacios, “System-Level Applications of Two Dimensional Materials,” Graphene 2016, Genova Italy (Invited talk).

June 2016, T. Palacios, “Redefining Electronics: System-Level Applications of 2D Materials,” Fundación Ramon Areces, Madrid, (Invited talk).

Aug. 2016, T. Palacios, “New Materials to Push the Limits of Moore’s Law,” Lester Eastman Conference, August 2016. (Invited talk).

Nov. 2016, M. Sun, Y. Zhang, and T. Palacios, “Vertical GaN Transistors for the Next Generation of Power Electronics,” WiPDA (Keynote/Plenary talk).

Nov. 2016, Y. Zhang, M. Sun, and T. Palacios, “Low-cost and High-performance Vertical GaN Diodes and Transistors for Power Electronics,” IFWS, Beijing, China, (Invited talk).

Feb. 2017, M. Sun, Y. Zhang, M. Pan, X. Gao, and T. Palacios, “Vertical GaN transistors for power electronics,” SPIE Photonics West Conference, San Francisco, CA.

May 2017, T. Palacios, “High-voltage vertical GaN pn diodes on Si”, Compound Semiconductor Week 2017 (44th International Symposium on Compound Semiconductors), Berlin, Germany.

July 2017, T. Palacios, “Redefining Electronics: System-level Applications of 2D Materials,” 1st International Workshop on 2D Atomic Sheets, organized in Washington DC.

Oct. 2017 Palacios, “Nanostructured GaN Transistors,” 39th IEEE Compound Semiconductor IC (CSIC) Symposium, Miami, FL. (Plenary Talk).

July 2017, M. Sun…T. Palacios, “Vertical GaN Electronics,” International Conf. on Nitride Semiconductors 2017, Strasbourg, France.

Sept. 2017, T. Palacios, “Graphene Electronics (or how to reinvent engineering with extreme materials),” Solvay Workshop on “Physics of Graphene and Graphene for Physics,” Brussels, Belgium.

Jan 2018, T. Palacios, “GaN Nanoelectronics,” UKNC Winter Conference 2018, Manchester, GB.

Mar. 2018, T. Palacios, “Gallium Nitride: Extreme Properties (and Opportunities) for Post-Moore Computing,” APS March Meeting 2018 Los Angeles, California.

Apr. 2018, T. Palacios, “Fin-based GaN RF and Power Devices,” GaN Marathon 2.0 Padova, Italy.

June 2018, T. Palacios, “2D Materials for Hardware Accelerators in More-than-Moore Electronics,” Gordon Research Conference, Frontiers of Science, Stonehill College, Easton, MA, USA.

June 2018, X. Zhang, T. Palacios, “MoS2 Phase-Junction-Based Schottky Diodes for RF Electronics,” International Microwave Symposium, Philadelphia, PA.

Aug 2018, T. Palacios, “GaN Nanostructures (or how to Take Transistor Linearity to new Levels),” International Symposium on Growth of III-Nitrides ISGN-7, Warsaw, Poland.

Sept. 2018, T. Palacios, “Novel Vertical GaN Power Devices,” SSDM2018 (International Conference on Solid State Devices and Materials) University of Tokyo, Tokyo, Japan.

Sept. 2018, T. Palacios, “Gallium nitride, graphene and the new computing revolution,” 12 Spanish Conference on Electron Devices, Salamanca, Spain (Invited Talk).

Nov. 2018, T. Palacios, “Gallium Nitride and the New Computer Revolution,” IWN 2018, Kanazawa, Japan (Invited Talk).

Jan. 2019, T. Palacios, “Gallium Nitride, Graphene and the Next Computing Revolution,” Hong Kong University of Science and Technology, Hong Kong (Invited talk).

Feb. 2019, T. Palacios, “The Graphene Revolution: From electronics to synthetic cells,” Graphene-for-US Conference, New York City, NY. (Plenary talk).

June 2019, Nadim Chowdhury, Ahmad Zubair, Joshua Perozek, Qingyun Xie and Tomas Palacios, “GaN for 5G Applications: FinFETs, CMOS and VerticalTransistors,” International Microwave Symposium, Boston, MA (Invited Talk).

June 2019, T. Palacios, “GaN Devices for Space Applications,,” Jet Propulsion Laboratory, Pasadena, CA. (Invited talk).

Aug. 2019, Xu Zhang and Tomas Palacios, “Two-dimensional MoS2-enabled Flexible Rectenna for Wireless Energy Harvesting in the Wi-Fi band,” SPIE Optics + Photonics, Nanoscience + Engineering 2019, San Diego, CA (Invited talk).

Aug. 2019 T. Palacios, “Vertical GaN Nanostructures for RF and Power Electronics”Topical Workshop on Heterostructure Microelectronics 2019 (TWHM 2019)Toyama, Japan (Invited talk).

Sept. 2019, T. Palacios, “The Graphene Revolution: From Transistors to Synthetic Cells,” Graphene Week, Helsinki, Finland, Sept. 23, 2019 (Plenary/Keynote talk).

Oct. 2019, T. Palacios, “From Flexible Electronics to Synthetic Cells: The Unique Opportunities of 2D Materials,” Air Force Research Laboratory, Dayton, OH (Invited Talk).

June 2020, T. Palacios, P. Shih et al., "GaN Nanowire Field Emitters with a Self-Aligned Gate Process," 2020 Device Research Conference (DRC), Columbus, OH, USA, 2020 (Invited Talk).

June 2020, G. bur, J Zhao, L Jain, A Zubair, T Palacios, J Kong, AI Akinwande, “Enabling Atmospheric Operation of Nanoscale Vacuum Channel Transistors,” 2020 Device Research Conference (DRC), (2020).

June 2020, A Zubair, J Perozek, J Niroula, O Aktas, V Odnoblyudov, T Palacios, “First Demonstration of GaN Vertical Power FinFETs on Engineered Substrate,” Device Research Conference (DRC), Columbus, OH, USA, 2020 (Invited Talk).

T. Palacios, “GaN For High Temperature Operation,” Workshop fundamental limits of GaN (and related III-N) electronics technology, DARPA, Sept. 28th, 2021

T. Palacios, “Extreme Semiconductors: The Critical Infrastructure to Build a Sustainable Future, “ Annual meeting of the Semiconductor and Electronics Industries in the Philippines Foundation, Inc., Nov. 23rd, 2021 (Invited speaker)

T. Palacios, “Materials and Devices for Edge Computing: Data to Decision, ” Army Research Laboratory, August 10th, 2021 (Invited speaker)

T. Palacios, “Electronics 5.0: New Materials and Devices for Edge Intelligence, “ University of California - Berkeley, April 30th, 2021 (Invited speaker)

T. Palacios, “The Future of Semiconductor Research,” Universidad Politecnica de Madrid (Spain), Feb. 10, 2021 (Invited speaker)

T. Palacios, “Electronics 5.0: New Materials and Devices for Edge Intelligence, “ Naval Research Laboratory, April 7th, 2021 (Invited speaker)

T. Palacios, “GaN 2.0: A Breakthrough Semiconductor for RF, Power and Space, “ Ohio State University, April 15th, 2021 (invited speaker)

T. Palacios, &#34;2D Materials: The Key towards Ubiquitous Intelligence,&#34; PolyU 85th Anniversary FAST Workshop Series on Two-dimensional Materials and Devices, March 24-25, 2022 (Invited speaker)

T. Palacios, &#34;Extreme Materials to Enable New Form-Factors in Electronics,&#34; Integrated Cognitive and Autonomous Multi-Sensor Systems Workshop, Texas A&amp;M, April 14, 2022 (Invited speaker)

T. Palacios, &#34;The Superpowers of New Materials,&#34; TEDx-MIT, April 23, 2022 (Invited speaker)

T. Palacios, &#34;Unlocking the Next Generation of Chip Materials, Technology Review&#39;s Future of Compute, May 3-4, 2022 (Invited speaker)

T. Palacios, &#34;Electronics 5.0: New Materials and Devices for Edge Intelligence,&#34; University of Michigan - Ann Arbor, May 6th, 2022 (Invited speaker)

T. Palacios, &#34;2D Nanoelectronics: New Materials and Devices for Edge Intelligence,&#34; 2022 IEEE Microelectronics Design and Test Symposium (MDTS), May 23-26, 2022 (Invited speaker)

T. Palacios, &#34;2D Materials: The Critical Infrastructure for the Future of Technology,&#34; Graphene 2022, July 5-7, 2022. (Invited speaker)

T. Palacios, &#34;MoS2 Transistors for Silicon Back-end-of-line Integration,&#34; Advanced Metallization Conference ADMETA, October 13-14, 2022 (Invited speaker)

T. Palacios, &#34;MoS2 Transistors for Back-End-of-the-Line Si Integration,&#34; MRS Fall Meeting, November 30, 2022 (Invited speaker)

T. Palacios, &#34;Zero-Energy Devices: Technology and Applications of Ubiquitous 6G Systems,&#34; MIT Industrial Liaison Program Conference, November 14th, 2022 (Invited speaker)

T. Palacios, &#34;Zero-Energy Devices: Technology and Applications of Ubiquitous 6G Systems,&#34; 6G Standarization meeting, November 30th, 2022 (Invited speaker)

T. Palacios, &#34;Electronics 5.0: New Materials and Devices for Edge Intelligence,&#34; University of Pennsylvania, December 14th, 2022 (Invited speaker)

1. **THESIS ADVISOR AND POST GRADUATE SCHOLAR SUPPORT****:**
   * + Students (graduated): 20 (Ph.D. since 2012) and 9 (M.S)
     + Post graduate: 14 (Supported)
     + Graduate (Ph.D.) students currently supported (15): J. Zhu, J. Niroula, J. Perozek, K. Limanta, M. Xue, P. Shih, Q. Xie, S. Hsia, Y. Luo, P. Yadav, H. W. Lee., D. Morales, M. Oh, H. Pal. C. Lopez.
     + Undergraduate students currently supported: 5

Doctoral and SM students:

1. Nadim Chowdhury, Ph.D. EECS (graduated in March 2022)

2. Joshua Perozek, Ph.D. EECS

3. Qingyun Xie, Ph.D., EECS

4. Mengyang Yuan, Ph.D. EECS (graduated in June 2022)

5. Mantian Xue, Ph.D. EECS

6. Jiadi Zhu, EECS, SM

7. John Niroula, Ph.D., EECS,

8. Kevin Limanta, Ph.D., EECS

9. Yiyue (Alyssa) Luo, EECS, CSAIL (supervisor Prof. Wojciech Matusik)

10. Sharon Hsia, SM., EECS

11. Dimple Kochar, Ph.D., EECS (transferred to a different group in Spring 2022)

12. Elaine McVay, Ph.D., EECS (graduated in June 2022)

13. Pao-Chuan Shih, Ph.D., EECS

14. Hae Won Lee

15. Minsik Oh

16. Hridibrata Pal

17. Pradyot Yadav

Doctoral students, as reader:

* Christian Lau, (Thesis supervisor: Prof. Max Shulaker)
* Emre Ergecen (Thesis supervisor: Nuh Gedik)
* Morgan Blevins (Thesis supervisor: Svetlana Boriskina)

MEng students:

* + - 1 Renbin Liu, 6A M.Eng. at Sky
    - Timothy Zavarella, 6A M.Eng. at NetApp

UROPs and SuperUROPs:

* + - Alisa Y Hathaway, EECS, (UROP-ELO)
    - James Greer (UROP)
    - Mathew Cook (UROP)
    - Nishat Protyasha (SuperUROP)
    - Neel Mondal (UROP)
    - Deniz Eruz (UROP)
    - Aija

Accomplishments of research supervisees:

* + - Elaine McVay graduated and became a postdoc at Lawrence Livermore National Laboratory.
    - Nadim Chowdhury graduated and became a professor at Bangladesh University of Engineering and Technology (BUET). Nadim&#39;s thesis was also selected for the 2022 MTL Doctoral Dissertation Seminar (DDS).
    - Mengyang Yuan graduated and joined Apple full time.

Supervised theses:

* Nadim Chowdhury, Ph.D. EECS (graduated in March 2022) Mengyang Yuan, Ph.D. EECS (graduated in June 2022) Elaine McVay, Ph.D., EECS (graduated in June 2022)

1. **TEACHING CONTRIBUTIONS:**
2. Teaching materials developed that illustrate teaching effectiveness or innovativeness:
   * 1. Design and teaching of a new Advanced Undergraduate Senior (AUS) level course on semiconductor device physics (6.077).
     2. Development of material to teach, for the first time, device simulation CAD in 6.720.
     3. Development of new homework and lecture content for 6.772.
     4. Development of new assignment, lectures, recitations notes, and the new transistor lab for 6.012
     5. Development of new labs and homeworks for 6.002.
     6. Development of material to bring a hardware-EE perspective for 6.02 recitations. This helped to compensate the Python/software-heavy lectures and labs.
     7. Added numerous active-learning activities for 6.02 such as creating student groups where students help engage and collaborate ideas among their peers.

2. Education contributions, apart from classroom performance and supervision, such as new educational programs and curricula developed by the candidate:

* + 1. Development of numerous activities (seminars, panels, mock interviews, mock job talks, mailing lists, etc.) to help senior graduate students to apply for faculty positions (2007-present).
    2. Participation in several events to introduce undergraduate students to course VI (e.g. “*Introducing Course 6 to Freshmen MIT students*,” MacGregor House, November 15th, 2007).
    3. Organizer of a seminar series on advanced nitride materials and devices (~12 talks) (2006-present).
    4. Chair of the MTL Seminar Series (2009-2015).
    5. Director of 6A Program (MIT EECS co-op MEng program) since July 2015.
    6. Director of the EECS Alliance program since July 2020. This program develops new initiatives to connect MIT students with industry.

3. Contributions to the educational commons and Lecturer:

* + 1. Reading admission folders of graduate students in course VI (2008-present).
    2. Reading admission folders of undergraduate students (2011-2012).
    3. Member of the advisory committee of the MIT-Spain MISTI program (2007-2008).
    4. Arrange summer internships in Spain for more than 10 MIT undergraduate students (2009).
    5. Collaboration with the MIT-France program by hosting French visiting students (2007-2010).
    6. UROP/Super-UROP supervisor (2008-present).
       1. ing students in the MIT Leaders for Global Operations (LGO) program (2011-present).
    7. Faculty Lead, MIT/Masdar Institute Microsystems program.
    8. Lecturer for 6.002 and 6.012
    9. Recitation Instructor for 6.02 and 6.012
    10. Course 6.2000 – roles (Fall 2022)

I co-lectured 6.2000 with Prof. Jeff Lang.

* + 1. Course 6.3100/2 – roles (Fall 2022)
* 6 h of lab proctoring/teaching per week

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