

Manuel Quevedo

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EDUCATION:

1996 **B.S. (with High Honors) in Chemistry**, University of Sonora
1998 **M.S in Materials Science and Engineering**, Saltillo Institute of
Technology
2002 **Ph.D. in in Materials Science and Engineering**, University of North
Texas

PROFESSIONAL EXPERIENCE:

04/14 – Now Professor of Materials Science and Engineering with adjunct
appointments in Physics, Chemistry and Electrical Engineering
09/10 – 04/14 Associate Professor of Materials Science and Engineering
04/07 – 09/10 Research Associate Professor of Materials Science and Engineering
06/04 – 12/06 Texas Instruments Assignee at International SEMATECH
06/02 – 04/07 Member of Technical Staff, Silicon Technology Development. Texas
Instruments INC.
01/06 – Now Adjunct Professor, University of Sonora, Mexico.

KEY PROFESSIONAL ACTIVITIES:

Professional Society Leadership Positions/Activities

Chaired over 40 sessions/symposia at national and international conferences including MRS (Materials Research Society), IEEE (Institute of Electrical and Electronics Engineers), SPIE (The International Society for Optical Engineering), etc. General Chair for the 2015 IMRC-MRS meeting in Cancun (2000 attendees/ 40 symposia), Member of the local arrangement committee for the 2012 Physical Electronics Conference, Local arrangements chair for the International Symposium on Integrated Functionalities in 2013, Chair for 10 symposia in the IUMRS in Cancun Mexico and Korea.

Editorships and Editorial Boards

Associate Editor, *Journal of Electronic Materials* (July 2013 - now), Associate Editor, *Sensors* (2016 -now), Guest Editor: *IEEE Sensors*, May 2013, *MRS Bulletin* January 2009. Regular reviewer for a number of journals including *ACS Nano*, *ACS applied materials interfaces*, *Organic Electronics*, *Semiconductor Science and Technology*, *Applied Physics Letters*, *Transactions on Electron Devices*, *Journal of Applied Physics*, *Microelectronic Engineering*, *Thin Solid Films*, *Applied Surface Science*, *Journal of the Society for Information Display*, *Materials Chemistry and Physics*, *Electrochemical and Solid-State Letters*, etc.

University Advisory and Review Boards

Director of the dual PhD program in Materials Science between UT-Dallas and CIMAV
Liaison between UT-Dallas and CONACYT Mexico for student exchange, Conacyt fellowships and postdoctoral stays, Member of the Scientific Board for Nanoholdings LLC.

Scientific Panels and Advisory Groups

UT-System Member of the executive advisory board – CONTEX programs
Founding member and member of the advisory board for the network of Mexican Talents
Panels and Site Review Teams: NSF: MRI, ERC, CAREER, etc.
Principal advisor for research cooperation between Mexico (CONACYT) and Korea (KETEP),
Member of the external advisory board for the Center for Applied Chemistry (Conacyt)
Member of the external advisory board for the Center for Research in Advanced Materials (Conacyt)
Advisory board for the Research and Technology Innovation Park in the State of Sonora

HONORS, AWARDS AND RECOGNITIONS:

2018	Graduation speaker for the class of 2018, UT-Dallas Multicultural Center
2016	Mexican Academy of Scientists
2015	Distinguish Alumni (Saltillo Institute of Technology)
2013	Faculty Diversity Award (University of Texas at Dallas)
2012	Inventor Recognition Award ((University of Texas at Dallas)
2011	Inventor Recognition Award ((University of Texas at Dallas)
2005	Corporate Excellence in Research Award (SEMATECH)
2003	Inventor Recognition Award (Semiconductor Research Corporation)
2002	Best Doctoral Dissertation Award (University of North Texas)
1998	Top 1% Materials Science Student in Mexico (National Council for Science and Technology, Mexico)

TEACHING

Organized Lectures

F19, S18, F17, F16, F15, S14, S13	Introduction to Nanoscience and Nanotechnology (Undergraduate)
S19, F13, F12, F11	Electronic, Magnetic and Optical Properties of Materials (Graduate)
S18	Radiation Detection (Graduate)
S17, S16, S15	Introduction to Materials Science and Engineering (Undergraduate)
F14, S12	Electronic Devices based on Organic Solids (Graduate)
S11	Advanced Functional Materials and Devices (Graduate)

Graduated Students

39	PhD	MSE	2019	Isabel Pintor “NiO _x p-type systems for high performance PN junctions”
38	PhD	MSE	2019	Rodolfo Rodriguez “ZnO/IGZO transparent Electronics”
37	MS	MSE	2019	Byron Murillo, “NMOS integrations with CdTe for Sensing”
36	PhD	CHEM	2018	Marissa Higgins “Perovskite-based neutron sensors
35	PhD	MSE	2017	Martha Serna “2D Transition metal di-chalcogenides using pulsed laser deposition”
34	MS	EE	2017	Justin Didier “portable low cost amplifier For solid state radiation detector”
33	PhD	MSE	2017	Alberto Avila “II-VI-based PN junctions for radiation detection
32	PhD	MSE	2017	David Guzman “SnO and SnO ₂ -based transparent electronics”
31	PhD	MSE	2016	Marcela Mireles “Low TCR coefficient films based on SiC:CrB ₂ :Si”
30	PhD	CHEM	2016	Lindsey Smith “Improvements in thin film solid state neutron” (with B. Gnade)
29	PhD	MSE	2015	Xang-Xi “Solution-based methods for MoS ₂ deposition on flexible substrates”
28	PhD	MSE	2014	Victor Martinez “CdS Thin Films Transistors Deposited by Pulsed laser deposition”
27	PhD	MSE	2014	Gerardo Gutierrez “ZnO-based TFTs for high performance inverters”
26	PhD	MSE	2014	John Murphy “Large Area Radiation Detectors Based on CdS/CdTe” (with Gnade)
25	PhD	CHEM	2014	Cynthia Karina Gutierrez “Hf, Zr and Lanthanum-based membranes for gas sensing”
24	PhD	MSE	2014	Juan C. Ramos “Inkjet printed CdS and TiO ₂ for Thin Films Transistors”
23	PhD	MSE	2013	Ana Salas-Villasenor “Chalcogenide Materials For Flexible Electronics”
22	PhD	CHEM	2012	Mike Perez “Hybrid CMOS for Low Power Devices” Co-advised with B. Gnade)
21	PhD	EE	2012	Duo Mao “Ferroelectric-based Memories for Flexible Electronics” (with B. Gnade)
20	PhD	MSE	2012	Isabel Medina “ZnO Thin Film Transistors and Devices”
19	PhD	MSE	2012	Daniela Morales “Electrical characterization of PMMA Hybrid films for TFTs
18	PhD	CHEM	2010	Amanda Carrillo “PMMA Hybrid films for permeation barriers”
17	MS	EE	2015	Kevin La Rosa “JFETs enabled by oxide thin film transistors”
16	MS	MSE	2015	Dewan Kabir “TIPS pentacene TFTs fabricated using inkjet methods”
15	MS	MSE	2014	Michelle Salgado “Sb ₂ S ₃ -doped CdS by PLD”

14	MS	MSE	2014	Aldo Zazueta	<i>"ZnTe TFTs deposited by PLD"</i>
13	MS	MSE	2014	Lucia Acosta	<i>"ZnS Thin Film transistors by PLD"</i>
12	MS	MSE	2014	Israel Corona	<i>"Synthesis of P3HT/CdS Solar Cells"</i>
11	MS	MSE	2014	Marcos Cota	<i>"Synthesis of In2S3 Nanoparticles"</i>
10	MS	PHYS	2013	Marco Alejandro Ruiz	<i>"Electrical Characterization of Cu-CdS Films"</i>
9	MS	MSE	2012	Francisco Berrellez	<i>"Pulsed laser deposition of CdS films"</i>
8	MS	MSE	2011	Marcela Mireles	<i>"Sol-Gel ZnO Films and its electrical characterization"</i>
7	MS	MSE	2011	Ana Salomon	<i>"Modeling of PZT-based cantilevers for Energy harvesting"</i>
6	MS	CHEM	2010	Rodrigo Ojeda	<i>"NiO Nanoparticles synthesized using the pechini route"</i>
5	MS	EE	2010	Gerardo Gutierrez Heredia	<i>"Electrical Characterization of CdS-TFTs"</i>
4	MS	EE	2009	Victor Hugo Martinez	<i>"Nanostructured PMMA/HfO2 barriers"</i>
3	MS	CHEM	2008	Liliana Elizabeth Romo Mendoza	<i>"NiO Nanoparticles as gate dielectrics"</i>
2	MS	MSE	2006	Rodolfo Ramos Gonzalez	<i>"Nanostructured HfO2 films for gate dielectrics"</i>
1	MS	EE	2003	Edgar Omar Garcia Sanchez	<i>"photocurrent in CdS nanostructures"</i>

Current Students

1	PhD	MSE	2019	Siddarta Nandagopala	<i>(II-VI Materials for Sensing)</i>
2	PhD	MSE	2020	Carlos Avila	<i>(Sensing devices based on II-VI materials)</i>
3	PhD	EE	2021	Lidia El Bouanani	<i>(NMOS systems for Sensing)</i>
4	PhD	MSE	2021	Zeshaam Shamsi	<i>(Oxide-based sensors)</i>
5	PhD	MSE	2021	Visdushi Singh	
6	MS	CHEM	2021	Joseph Song	
7	MS	CHEM	2021	Victor Fan	

Postdoctoral Researchers and Staff Scientists

Dr. Rodolfo Rodriguez	2020 -	University of Texas at Dallas, Staff Scientist
Dr. Alfonso Caraveo	2019 -	University of Texas at Dallas, Staff Scientist
Dr. Gabriela Montano	2019 -	University of Texas at Dallas, Staff Scientist
Dr. Josefina Arellano	2019 -	University of Texas at Dallas, Staff Scientist
Dr. Martin Reyes	2019 -	University of Texas at Dallas, Staff Scientist
Dr. D. Chapman	2010 -	University of Texas at Dallas, Staff Scientist
Dr. Iker Chavez	2017 - 2018	<i>Now at</i> CIDESI, Mexico. (Faculty)
Dr. Massimo Catalano	2018 - 2019	<i>Now at</i> Italy Trieste National Lab
Dr. Israel Mejia	2012 - 2018	<i>Now at</i> CIDESI, Mexico. (Faculty)
Dr. A. Chaterjee	2015 - 2018	<i>Now</i> Patent analyst
Dr. F. Ely	2015 - 2016	<i>Now at</i> CEITEC, Brazil (Faculty)
Dr. W. de la Cruz	2014 - 2016	<i>Now at</i> National Autonomous University of Mexico (Faculty)
Dr. A. Olivas	2014 - 2015	<i>Now at</i> National Autonomous University of Mexico (Faculty)
Dr. N. Como	2011 - 2014	<i>Now at</i> National Polytechnic Institute (Faculty)
Dr. M. E. Nicho	2012 - 2013	<i>Now at</i> University of Morelos (Faculty)
Dr. M. Dominguez	2012 - 2013	<i>Now at</i> National Institute for Optics (Faculty)
Dr. J. Conde	2011 - 2012	<i>Now at</i> University of Chiapas (Faculty)
Dr. A. Carrillo	2010 - 2012	<i>Now at</i> University of Ciudad Juarez (Faculty)
Dr. M. Singh	2010 - 2011	<i>Now at</i> Indian Institute of Technology (Faculty)
Dr. R. Ramirez	2010 - 2011	<i>Now at</i> Center for Research and Advanced Studies (Faculty)
Dr. M. Abdelah	2009 - 2010	<i>Now at</i> UAEU (Faculty)
Dr. L. Gonzalez	2009 - 2010	<i>Now at</i> Center for Research and Advanced Studies (Faculty)
Dr. L. Garcia	2009 - 2010	<i>Now at</i> Center for Applied Chemistry (Faculty)
Dr. I. Trachtenberg	2009 - 2014	Deceased (2017)

RESEARCH

Refereed Archival Journal Publications

- 261 R. Rodriguez-Davila, A. Ortiz-Conde, C. Avila-Avendano, Z. Shamsi, and M. A. Quevedo-Lopez, "On the extraction of the asymmetric parasitic source and drain resistances for MOSFETs," [doi: 10.1016/j.sse.2019.107700], *Solid-State Electronics*, Article vol. 164, 2020, Art. No. 107700.
- 260 P. Zhuang *et al.*, "Nonpolar Resistive Switching of Multilayer-hBN-Based Memories," [doi: 10.1002/aelm.201900979], *Advanced Electronic Materials*, Article vol. 6, no. 1, 2020, Art. No. 1900979.
- 259 M. Martínez-Gil *et al.*, "Effect of annealing temperature on the thermal transformation to cobalt oxide of thin films obtained via chemical solution deposition," [doi: 10.1016/j.mssp.2019.104825], *Materials Science in Semiconductor Processing*, Article vol. 107, 2020, Art. No. 104825.
- 258 P. Bolshakov, R. A. Rodriguez-Davila, M. Quevedo-Lopez, and C. D. Young, "Positive Bias Instability in ZnO TFTs with Al₂O₃ Gate Dielectric," in *IEEE International Reliability Physics Symposium Proceedings*, 2019, vol. 2019-March.
- 257 D. C. Bouttier-Figueroa *et al.*, "Characterization of the antibacterial galactomannan/ Zn(OH)-ZnO composite material prepared in situ from a green process using mesquite seeds as a biopolymer source," [doi: 10.1007/s12034-019-1810-8], *Bulletin of Materials Science*, Article vol. 42, no. 3, 2019, Art. No. 116.
- 256 I. R. Chavez-Urbiola, M. I. Pintor-Monroy, F. J. Willars-Rodriguez, Y. V. Vorobiev, R. Ramírez-Bon, and M. A. Quevedo-López, "Effects of aluminum doping upon properties of cadmium sulfide thin films and its effect on ITO/CdS:Al/NiO_x/Ni/Au diodes," [doi: 10.1063/1.5087153], *Journal of Applied Physics*, Article vol. 126, no. 11, 2019, Art. No. 115702.
- 255 A. G. Contreras-Cortés *et al.*, "Toxicological assessment of cross-linked beads of chitosan-alginate and *Aspergillus australensis* biomass, with efficiency as biosorbent for copper removal," [doi: 10.3390/polym11020222], *Polymers*, Article vol. 11, no. 2, 2019, Art. No. 222.
- 254 M. Gomez-Alvarez *et al.*, "Application of ZnO Schottky diodes in rectifier circuits for implementation in energy harvesting," [doi: Digest Journal of Nanomaterials and Biostructures], Article vol. 14, no. 1, pp. 153-159, 2019.
- 253 D. E. Guzmán-Caballero, M. A. Quevedo-López, and R. Ramírez-Bon, "Optical properties of p-type SnO_x thin films deposited by DC reactive sputtering," [doi: 10.1007/s10854-018-0406-1], *Journal of Materials Science: Materials in Electronics*, Article vol. 30, no. 2, pp. 1366-1373, 2019.
- 252 C. A. Hernández-Gutiérrez *et al.*, "Characterization of n-GaN / p-GaAs NP heterojunctions," [doi: 10.1016/j.spmi.2019.106298], *Superlattices and Microstructures*, Article vol. 136, 2019, Art. No. 106298.
- 251 M. Higgins *et al.*, "Solvent-free and large area compatible deposition of methylammonium lead bromide perovskite by close space sublimation and its application in PIN diodes," [doi: 10.1016/j.tsf.2019.137585], *Thin Solid Films*, Article vol. 692, 2019, Art. No. 137585
- 250 V. H. Martínez-Landeros, N. Hernandez-Como, G. Gutierrez-Heredia, M. A. Quevedo-Lopez, and F. S. Aguirre-Tostado, "Structural, chemical and electrical properties of CdS thin films fabricated by pulsed laser deposition using varying background gas pressure," [doi: 10.1016/j.tsf.2019.05.014], *Thin Solid Films*, Article vol. 682, pp. 24-28, 2019.
- 249 V. H. Martinez-Landeros, N. Hernández-Como, G. Gutierrez-Heredia, R. Ramirez-Bon, M. A. Quevedo-López, and F. S. Aguirre-Tostado, "Low-temperature thin film transistors based on pulsed laser deposited CdS active layers," [doi: 10.1088/1361-6641/aaf66d], *Semiconductor Science and Technology*, Article vol. 34, no. 2, 2019, Art. No. 025008
- 248 J. Meza-Arroyo, M. G. Syamala Rao, I. Mejia, M. A. Quevedo-López, and R. Ramírez-Bon, "Low temperature processing of Al₂O₃-GPTMS-PMMA hybrid films with applications to high-performance ZnO thin-film transistors," [doi: 10.1016/j.apsusc.2018.10.170], *Applied Surface Science*, Article vol. 467-468, pp. 456-461, 2019.
- 247 A. G. Montaña-Figueroa *et al.*, "Detection of apoptotic and live pre-osteoblast cell line using impedance-based biosensors with variable electrode design," [doi: 10.1016/j.bios.2018.11.057], *Biosensors and Bioelectronics*, Article vol. 128, pp. 37-44, 2019.

- 246 M. I. Pintor-Monroy, B. L. Murillo-Borjas, M. Catalano, and M. A. Quevedo-Lopez, "Controlling Carrier Type and Concentration in NiO Films to Enable in Situ PN Homojunctions," [doi: 10.1021/acsami.9b04380], *ACS Applied Materials and Interfaces*, Article vol. 11, no. 30, pp. 27048-27056, 2019.
- 245 K. J. Ramos-Corella, M. Sotelo-Lerma, A. A. Gil-Salido, J. L. Rubio-Pino, O. Auciello, and M. A. Quevedo-López, "Controlling crystalline phase of TiO₂ thin films to evaluate its biocompatibility," [doi: 10.1080/10667857.2019.1576821], *Materials Technology*, Article vol. 34, no. 8, pp. 455-462, 2019.
- 244 M. G. Reyes-Banda, E. Regalado-Perez, M. I. Pintor-Monroy, C. A. Hernández-Gutiérrez, M. A. Quevedo-López, and X. Mathew, "Effect of Se diffusion and the role of a thin CdS buffer layer in the performance of a CdSe/CdTe solar cell," [doi: 10.1016/j.spmi.2019.106219], *Superlattices and Microstructures*, Article vol. 133, 2019, Art. no. 106219.
- 243 R. Rodriguez-Davila, A. Ortiz-Conde, C. Avila-Avendano, and M. A. Quevedo-Lopez, "A New Integration-Based Procedure to Extract the Threshold Voltage, the Mobility Enhancement Factor, and the Series Resistance of Thin-Film MOSFETs," [doi: 10.1109/TED.2019.2913699], *IEEE Transactions on Electron Devices*, Article vol. 66, no. 7, pp. 2979-2985, 2019, Art. no. 8713512.
- 242 R. A. Rodriguez-Davila, P. Bolshakov, C. D. Young, and M. Quevedo-Lopez, "Understanding the effects of low-temperature passivation and annealing on ZnO TFTs test structures," in *IEEE International Conference on Microelectronic Test Structures*, 2019, vol. 2019-March, pp. 190-193.
- 241 R. A. Rodriguez-Davila, R. A. Chapman, P. Bolshakov, C. D. Young, and M. Quevedo-Lopez, "Impact of deposition temperature on the performance and initial stability of nanocrystalline ZnO thin-film transistors," [doi: 10.1016/j.mee.2019.111114], *Microelectronic Engineering*, Article vol. 217, 2019, Art. no. 111114.
- 240 R. A. Rodriguez-Davila, I. Mejia, R. A. Chapman, C. D. Young, and M. Quevedo-Lopez, "Performance and Reliability Comparison of ZnO and IGZO Thin-Film Transistors and Inverters Fabricated at a Maximum Process Temperature of 115 °c," [doi: 10.1109/TED.2019.2931635], *IEEE Transactions on Electron Devices*, Article vol. 66, no. 9, pp. 3861-3866, 2019, Art. no. 8796359.
- 239 J. Wang *et al.*, "Revealing lattice and photocarrier dynamics of high-quality MAPbBr single crystals by far infrared reflection and surface photovoltage spectroscopy," [doi: 10.1063/1.5072794], *Journal of Applied Physics*, Article vol. 125, no. 2, 2019, Art. no. 025706.
- 238 X. Xu, Z. Wang, S. Lopatin, M. A. Quevedo-Lopez, and H. N. Alshareef, "Wafer scale quasi single crystalline MoS₂ realized by epitaxial phase conversion," [doi: 10.1088/2053-1583/aaf3e9], *2D Materials*, Article vol. 6, no. 1, 2019, Art. no. 015030.
- 237 C. D. Young *et al.*, "Relatively low-temperature processing and its impact on device performance and reliability," in *ECS Transactions*, 2019, vol. 90, pp. 89-97.
- 236 M. Higgins *et al.*, "Enhanced reproducibility of planar perovskite solar cells by fullerene doping with silver nanoparticles," [doi: 10.1063/1.5036643], *Journal of Applied Physics*, Article vol. 124, no. 6, 2018, Art. no. 065306.
- 235 S. Kumar, Y. Lei, N. H. Alshareef, M. A. Quevedo-Lopez, and K. N. Salama, "Biofunctionalized two-dimensional Ti₃C₂ MXenes for ultrasensitive detection of cancer biomarker," [doi: 10.1016/j.bios.2018.08.076], *Biosensors and Bioelectronics*, Article vol. 121, pp. 243-249, 2018.
- 234 L. I. Lomeli-Galaz *et al.*, "Morphological and structural study of the growth of CdTe thin films by pulsed laser deposition," [doi: *Chalcogenide Letters*, Article vol. 15, no. 6, pp. 353-364, 2018.
- 233 F. J. Ochoa-Estrella, A. Vera-Marquina, I. Mejia, A. L. Leal-Cruz, and M. Quevedo-López, "Pressure influence on structural and optical behaviors of ZnTe thin films grown by PLD," [doi: 10.1007/s10854-018-8755-3], *Journal of Materials Science: Materials in Electronics*, Article vol. 29, no. 9, pp. 7629-7636, 2018.
- 232 M. I. Pintor-Monroy, D. Barrera, B. L. Murillo-Borjas, F. J. Ochoa-Estrella, J. W. P. Hsu, and M. A. Quevedo-Lopez, "Tunable Electrical and Optical Properties of Nickel Oxide (NiO) Thin Films for

- Fully Transparent NiO / GaO₃ Junction Diodes," [[doi: 10.1021/acsami.8b08095](https://doi.org/10.1021/acsami.8b08095)], *ACS Applied Materials and Interfaces*, Article vol. 10, no. 44, pp. 38159-38165, 2018.
- 231 M. G. S. Rao, S. Meraz-Davila, M. A. Quevedo-Lopez, and R. Ramirez-Bon, "Complete Solution-Processed Low-Voltage Hybrid CdS Thin-Film Transistors with Polyvinyl Phenol as a Gate Dielectric," [[doi: 10.1109/LED.2018.2822180](https://doi.org/10.1109/LED.2018.2822180)], *IEEE Electron Device Letters*, Article vol. 39, no. 5, pp. 703-706, 2018.
- 230 M. G. S. Rao, A. Sánchez-Martinez, G. Gutiérrez-Heredia, M. A. Quevedo-López, and R. Ramírez-Bon, "Sol-gel derived low temperature HfO₂-GPTMS hybrid gate dielectric for a-IGZO thin-film transistors (TFTs)," [[doi: 10.1016/j.ceramint.2018.06.056](https://doi.org/10.1016/j.ceramint.2018.06.056)], *Ceramics International*, Article vol. 44, no. 14, pp. 16428-16434, 2018.
- 229 M. E. Rivas-Aguilar *et al.*, "Specific contact resistance of IGZO thin film transistors with metallic and transparent conductive oxides electrodes and XPS study of the contact/semiconductor interfaces," [[doi: 10.1016/j.cap.2018.04.002](https://doi.org/10.1016/j.cap.2018.04.002)], *Current Applied Physics*, Article vol. 18, no. 7, pp. 834-842, 2018.
- 228 R. A. Rodriguez-Davila, I. Mejia, M. Quevedo-Lopez, and C. D. Young, "Hot carrier stress investigation of zinc oxide thin film transistors with an al₂o₃ gate dielectric," in *Proceedings of the International Symposium on the Physical and Failure Analysis of Integrated Circuits, IPFA*, 2018, vol. 2018-July
- 227 M. G. Syamala Rao *et al.*, "Low-temperature sol-gel ZrHfO₂-PMMA hybrid dielectric thin-films for metal oxide TFTs," [[doi: 10.1016/j.jnoncrysol.2018.08.014](https://doi.org/10.1016/j.jnoncrysol.2018.08.014)], *Journal of Non-Crystalline Solids*, Article vol. 502, pp. 152-158, 2018.
- 226 S. E. Wheelis, A. G. Montaña-Figueroa, M. Quevedo-Lopez, and D. C. Rodrigues, "Effects of titanium oxide surface properties on bone-forming and soft tissue-forming cells," [[doi: 10.1111/cid.12656](https://doi.org/10.1111/cid.12656)], *Clinical Implant Dentistry and Related Research*, Article vol. 20, no. 5, pp. 838-847, 2018.
- 225 C. D. Young *et al.*, "Electrical characterization of process induced effects on non-silicon devices," in *ICICDT 2018 - International Conference on IC Design and Technology, Proceedings*, 2018, pp. 173-176.
- 224 M. I. Serna, S. M. N. Hasan, S. Nam, L. El Bouanani, S. Moreno, H. Choi, H. N. Alshareef, M. Minary-Jolandan, and M. A. Quevedo-Lopez, "Low-Temperature Deposition of Layered SnSe₂ for Heterojunction Diodes," *Adv Mater Interfaces*, vol. 5, Aug 23 2018.
- 223 M. E. Rivas-Aguilar, N. Hernandez-Como, G. Gutierrez-Heredia, A. Sanchez-Martinez, M. M. Ramirez, I. Mejia, and M. A. Quevedo-Lopez, "Specific contact resistance of IGZO thin film transistors with metallic and transparent conductive oxides electrodes and XPS study of the contact/semiconductor interfaces," *Curr Appl Phys*, vol. 18, pp. 834-842, Jul 2018.
- 222 M. G. S. Rao, A. Sanchez-Martinez, G. Gutierrez-Heredia, M. A. Quevedo-Lopez, and R. Ramirez-Bon, "Sol-gel derived low temperature HfO₂-GPTMS hybrid gate dielectric for a-IGZO thin-film transistors (TFTs)," *Ceram Int*, vol. 44, pp. 16428-16434, Oct 1 2018.
- 221 M. G. S. Rao, S. Meraz-Davila, M. A. Quevedo-Lopez, and R. Ramirez-Bon, "Complete Solution-Processed Low-Voltage Hybrid CdS Thin-Film Transistors With Polyvinyl Phenol as a Gate Dielectric," *IEEE Electr Device L*, vol. 39, pp. 703-706, May 2018.
- 220 F. J. Ochoa-Estrella, A. Vera-Marquina, I. Mejia, A. L. Leal-Cruz, and M. Quevedo-Lopez, "Pressure influence on structural and optical behaviors of ZnTe thin films grown by PLD," *J Mater Sci-Mater El*, vol. 29, pp. 7629-7636, May 2018.
- 219 D. Kim, H. Kang, D. Bae, S. Nam, M. Quevedo-Lopez, and H. Choi, "Synthesis of reduced graphene oxide/aluminum nanocomposites via chemical-mechanical processes," *J Compos Mater*, vol. 52, pp. 3015-3025, Sep 2018.
- 218 M. Higgins, M. I. Pintor-Monroy, and M. Quevedo-Lopez, "Effects of Plasma Pretreatment on ZnO Deposition by SILAR on SiO₂, HfO₂, and Glass Substrates," *Cryst Res Technol*, vol. 53, Aug 2018.
- 217 M. Higgins, F. Ely, R. C. Nome, R. A. Nome, D. P. dos Santos, H. Choi, S. Nam, and M. Quevedo-Lopez, "Enhanced reproducibility of planar perovskite solar cells by fullerene doping with silver nanoparticles," *J Appl Phys*, vol. 124, Aug 14 2018.

- 216 R. Garcia, I. Mejia, J. Tinoco, J. E. Molinar-Solis, A. Morales, M. Aleman, S. Sandoval, and M. A. Quevedo-Lopez, "A Compact Drain Current Model for Thin-Film Transistor Under Bias Stress Condition," *IEEE T Electron Dev*, vol. 65, pp. 1803-1809, May 2018.
- 215 D. E. Guzman-Caballero, M. A. Quevedo-Lopez, W. De la Cruz, and R. Ramirez-Bon, "Fully patterned p-channel SnO TFTs using transparent Al₂O₃ gate insulator and ITO as source and drain contacts," *Semicond Sci Tech*, vol. 33, Mar 2018.
- 214 R. A. Chapman, R. A. Rodriguez-Davila, W. G. Vandenberghe, C. L. Hinkle, I. Mejia, A. Chatterjee, and M. A. Quevedo-Lopez, "Quantum Confinement and Interface States in ZnO Nanocrystalline Thin-Film Transistors," *IEEE T Electron Dev*, vol. 65, pp. 1787-1795, May 2018.
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INVITED TALKS

- 90 Manuel Quevedo-Lopez " Oxides and perovskite materials for radiation detection" University of Texas at San Antonio, November, 2019
- 89 Manuel Quevedo-Lopez " Oxides and perovskite materials for radiation detection" International Conference of Advanced Materials, Panama, Panama. October, 2019
- 88 Manuel Quevedo-Lopez " Perovskite materials for radiation detection" AFRL, Santiago Chile, 2019
- 87 Manuel Quevedo-Lopez "Large Area and thin films for radiation detection" University of Texas at Arlington. March 2019.
- 86 Manuel Quevedo-Lopez "Thin films for radiation detection" Universidad Catholica de Chile, Santiago, Chile. March 2019.
- 85 Manuel Quevedo-Lopez "Hybrid perovskites for radiation detection" Congreso Nacional de Nanotecnología 2018, Pucon Chile. 2018.
- 84 Manuel Quevedo-Lopez "Large Area Solid-State Radiation Detectors" Nanomx2018, Puebla. Mexico. October 2018.
- 83 Manuel Quevedo-Lopez, "UT-Dallas technology for radiation detection" Institute for Renewable Energy at UNAM. Cuernavaca, Mexico, August 2018.
- 82 Manuel Quevedo-Lopez, "Hybrid perovskites for radiation detection" IV International symposium of nanoscience and nanomaterials, Ensenada, Mexico, April 2018.
- 81 M. Quevedo-Lopez, "Perovskite-based neutron sensors" in the 10th edition of the International School on Hybrid and Organic Photovoltaics (ISOPHOS), Rome Italy, August 2018.
- 80 M. Quevedo-Lopez, " Perovskite photosensors" IMRC-MRS 2018, Symposia in Innovative smart materials for flexible/wearable and large-area electronics, Cancun Mexico, August 2018.
- 79 M. Quevedo-Lopez, "Thin Film materials and devices for sensors"CMOSET, WARSAW, Poland. May 2017.
- 78 M. Quevedo-Lopez, "Oxide and II-VI in solid-state Radiation Detection: Gammas and neutrons" nanoKorea, July 2017
- 77 M. Quevedo-Lopez, "Progress in solid-state Radiation Detection" InFUSION, Korea, May 2017
- 76 M. Quevedo-Lopez, "Functional Thin Film Materials" Universidad National de Colombia, May 2017.
- 75 M. Quevedo-Lopez, "Perovskites Materials for Radiation Detectors, MRS Fall Meeting, Boston MA, 2017
- 74 M. Quevedo-Lopez, I. Mejia, B. Gnade, "Large Area Radiation Detectors for Homeland Security", GRDC, Southern Methodist University, Dallas, TX, November 2017
- 73 I. Mejia, M. Quevedo-Lopez, B. Gnade, "P and N-Type Materias and Devices Based on Oxides and Chalcogenides", ENGE, Jeju, Korea, November 2016.
- 72 I. Mejia, M. Quevedo-Lopez, B. Gnade, "II-VI Materials and Devices for Radiation Sensors", XXVI International Materials Research Congress, Cancun, Mexico, August 2017.
- 71 M. Gomez, L. Resendiz, V. Cabrera, C. Avila, R. Garcia, I. Mejia, M. Quevedo, "ZnO Schottky Barrier Optimization for Thin Film AC-to-DC Converters", XXV International Materials Research Congress, Cancun, Mexico, August 2016.
- 70 M.A. Quevedo-Lopez " Pulsed Laser Deposition of 2D and Bulk II-VI Materials" IX International Conference on Surface, Materials and Vacuum (IX-ICSMV) Mazatlán (September 2016).
- 69 M.A. Quevedo-Lopez "p and n-type materials and devices based on oxides and chalcogenide materials". XXV Materials Research Congress. Cancun Mexico (August 2016)
- 68 M.A. Quevedo-Lopez "large area solid-state radiation detectors" XXV Materials Research Congress. Cancun Mexico (August 2016)
- 67 M.A. Quevedo-Lopez " Pulsed Laser Deposition of 2D and Bulk II-VI Materials" The 16th International Meeting on Information Display. Jeju, South Korea. (August 2016)
- 66 Progress in Thin Film Neutron Detection Materials and Systems at UT-Dallas. 2016 GRDC Symposium, Dallas, TX (May 2016)

- 65 M.A. Quevedo-Lopez. “ Pulsed Laser deposition of II-VI Materials” XXIV International Congress on Extractive Metallurgy, Mexico April 29 – May 1st, 2015.
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- 63 M.A. Quevedo-Lopez. “Rutherford Back Scattering measurements of ultrathin Films" King Abdullah University of Science and Technology Saudi Arabia (Feb 2015).
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- 1 13/489093. J .Bahr, L. Butuc, S. Gina and M.A. Quevedo-Lopez. Sealing apparatus and method for forming a seal in a subterranean wellbore.
- 2 13/489006. Noe Alvarez, J. Bahr and M.A. Quevedo-Lopez. Force sensing device and methods for preparing and uses thereof
- 3 13/241751. H. Niimi and M.A. Quevedo-Lopez. Formation of metal gate electrode using rare earth alloy

incorporated into mid gap metal

- 4 12/193956 A. Pinto and M.A. Quevedo-Lopez. Integration of high-k metal-gate stack into direct silicon bonding (dsb) hybrid orientation technology (hot) pMOS process flow
- 5 US 8,816,446. Hiroaki Niimi, M.A. Quevedo-Lopez, Formation of metal gate electrode using rare earth alloy incorporated into mid gap metal
- 6 US 8,058,122. M.A. Quevedo-Lopez, L. Olsen and J. Chambers. Methods and systems to mitigate etch stop clipping for shallow trench isolation fabrication.
- 7 US 7,943,479. M.A. Quevedo-Lopez, A. Pinto. Integration of high-k metal gate stack into direct silicon bonding (DSB) hybrid orientation technology (HOT) pMOS process flow.
- 8 US 7,799,632. M.A. Quevedo-Lopez, Zhao J. L. H. Breaux. Method of forming an isolation structure by performing multiple high-density plasma depositions.
- 9 US 7,625,807. M.A. Quevedo-Lopez, L. Olsen and J. Chambers. Methods and systems to mitigate etch stop clipping for shallow trench isolation fabrication.
- 10 US 7,199,021. M.A. Quevedo-Lopez, L. Olsen and J. Chambers. Methods and systems to mitigate etch stop clipping for shallow trench isolation fabrication.
- 11 US 7,115,530. M. A. Quevedo-Lopez, J. J. Chambers, L. Colombo, M. Visokay. "Top surface roughness reduction of high-k dielectric materials using plasma based processes.
- 12 US 7,045,436. Chatterjee; Amitava, Tsao, Alwin, M. A. Quevedo-Lopez, Yoon; Jong, Tang Shaoping. Method to engineer the inverse narrow width effect (INWE) in CMOS technology using shallow trench isolation (STI).
- 13 US 6,933,235. M. A. Quevedo-Lopez, Robert M. Wallace, Mohamed El Bouanani, and Bruce E. Gnade. Method for removing contaminants on a substrate.
- 14 US 6,809,370. L. Colombo, J. J. Chambers, M. Visokay, M. A. Quevedo-Lopez and A.L.P. Rotondaro. High-k gate dielectric with uniform nitrogen profile and methods for making the same.

CONTRIBUTED TALKS

- 165 R. A. Rodriguez-Davila, R. A. Chapman, P. Bolshakov, C.D. Young, and M. Quevedo-Lopez, "Impact of Al₂O₃ Deposition Temperature on the Performance and Initial Instability of Nanocrystalline Zinc Oxide Thin Film Transistors," *Presented at the Microelectronic Engineering Insulating Film of Semiconductors Conference, Cambridge, UK, 2019.*
- 164 R. A. Rodriguez-Davila, R. A. Chapman, I. Mejia, M. A. Quevedo-Lopez, and C. D. Young, "Schottky Barrier Height Tuning on Platinum-gated ZnO Metal-Semiconductor Field Effect Transistors by In-Situ Surface Modification," presented at the IEEE Semiconductor Interface Specialist Conference, San Diego, CA, 2018.
- 163 M.I. Pintor-Monroy, B.L. Murillo-Borjas, G.A. Velázquez-Nevárez and M.A. Quevedo-Lopez. "Applications of amorphous Ga₂O₃ deposited by pulsed laser deposition and sputtering at room temperature", 49th IEEE Semiconductor Interface Specialists Conference (SISC), San Diego US, December 2018.
- 162 M.I. Pintor-Monroy, B.L. Murillo-Borjas, J.W.P. Hsu, H. Alshareef and M.A. Quevedo-Lopez. "All oxide NiO-Ga₂O₃ PN junction: Ga₂O₃ layer thickness effect and application as temperature sensor and UV detector", XXVII International Materials Research Congress, Cancun Mexico, August 2018.
- 161 M. Martinez-Gil, M.I. Pintor-Monroy, D. Cabrera-German, M.A. Cota-Leal, A. Garzon, J.A. Garcia-Valenzuela, M.A. Quevedo-Lopez and M. Sotelo-Lerma, "Influence of annealing temperature on nickel oxide thin films deposited by chemical bath deposition", XXVII International Materials Research Congress, Cancun Mexico, August 2018.
- 160 M.G. Reyes-Banda, M.I. Pintor-Monroy, E. Regalado-Perez, M.A. Quevedo-Lopez and X. Mathew. "Investigation of the Se alloying with CdTe and the effect on the opto-electronic properties of CdTe/CdS solar cell", XXVII International Materials Research Congress, Cancun Mexico, August 2018.
- 159 M.I. Pintor-Monroy, B.L. Murillo-Borjas, J.W.P. Hsu and M.A. Quevedo-Lopez. "Óxidos avanzados: Unión PN de NiO_x y Ga₂O₃ depositados por PLD a temperatura ambiente", Primer encuentro de becarios CONACyT en Norteamérica, Washington DC US, March 2018.
- 158 M.I. Pintor-Monroy, B.L. Murillo-Borjas, J.W.P. Hsu and M.A. Quevedo-Lopez. "All-oxide NiO-Ga₂O₃ PN junction deposited at room temperature: Ga₂O₃ thickness effect on PN junction performance and future applications", APS March Meeting 2018, Los Angeles US, March 2018.

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 5. Sotelo-Lerma, M., Ramirez-Bon, R., Quevedo-Lopez, M. A., and R.A. Orozco. "Effect of the reaction temperature in the synthesis of intrazeolitic CdS film." Presented at the XVII Congress of the Mexican Society of Vacuum and Surface Science, Mazatlan, Mexico, September 1997.
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1. Mares, J. G., Quevedo-Lopez, M. A., and R.A. Orozco-Teran. "A kinetic method with electronic interface to evaluate enzymatic activity." Presented at the Second Meeting in health research of the State of Sonora, Sonora, Mexico, May 1994.

PATENTS

- 16 EP Application No. 17714133.0 Manuel Quevedo, I. Mejia, B. Gnade "Radiation Detector"
- 15 UTD 19067 M. Quevedo, A. Caraveo, C. Avila "Neutron detectors and methods of fabricating the same using boron as neutron conversion layer and conformal doping source"
- 14 13/489093. J. Bahr, L. Butuc, S. Gina and M.A. Quevedo-Lopez. Sealing apparatus and method for forming a seal in a subterranean wellbore.
- 13 13/489006. Noe Alvarez, J. Bahr and M.A. Quevedo-Lopez. Force sensing device and methods for preparing and uses thereof
- 12 13/241751. H. Niimi and M.A. Quevedo-Lopez. Formation of metal gate electrode using rare earth alloy incorporated into mid gap metal
- 11 12/193956 A. Pinto and M.A. Quevedo-Lopez. Integration of high-k metal-gate stack into direct silicon bonding (dsb) hybrid orientation technology (hot) pMOS process flow
- 10 US 8,816,446. Hiroaki Niimi, M.A. Quevedo-Lopez, Formation of metal gate electrode using rare earth alloy incorporated into mid gap metal
- 9 US 8,058,122. M.A. Quevedo-Lopez, L. Olsen and J. Chambers. Methods and systems to mitigate etch stop clipping for shallow trench isolation fabrication.
- 8 US 7,943,479. M.A. Quevedo-Lopez, A. Pinto. Integration of high-k metal gate stack into direct silicon bonding (DSB) hybrid orientation technology (HOT) pMOS process flow.
- 7 US 7,799,632. M.A. Quevedo-Lopez, Zhao J. L. H. Breaux. Method of forming an isolation structure by performing multiple high-density plasma depositions.
- 6 US 7,625,807. M.A. Quevedo-Lopez, L. Olsen and J. Chambers. Methods and systems to mitigate etch stop clipping for shallow trench isolation fabrication.
- 5 US 7,199,021. M.A. Quevedo-Lopez, L. Olsen and J. Chambers. Methods and systems to mitigate etch stop clipping for shallow trench isolation fabrication.
- 4 US 7,115,530. M. A. Quevedo-Lopez, J. J. Chambers, L. Colombo, M. Visokay. "Top surface roughness reduction of high-k dielectric materials using plasma based processes.
- 3 US 7,045,436. Chatterjee; Amitava, Tsao; Alwin, M. A. Quevedo-Lopez, Yoon; Jong, Tang Shaoping. Method to engineer the inverse narrow width effect (INWE) in CMOS technology using shallow trench isolation (STI).
- 2 US 6,933,235. M. A. Quevedo-Lopez, Robert M. Wallace, Mohamed El Bouanani, and Bruce E. Gnade. Method for removing contaminants on a substrate.
- 1 US 6,809,370. L. Colombo, J. J. Chambers, M. Visokay, M. A. Quevedo-Lopez and A.L.P. Rotondaro. High-k gate dielectric with uniform nitrogen profile and methods for making the same.

SUMMARY OF FUNDING

	TITLE	AGENCY	START	END	AMOUNT	PI's
38	PFI:AIR-TT: Portable Neutron Detector	NSF	09/17	09/18	\$199,000	Quevedo

37	Si-based e-fuses	Texas Instruments	1/19	12/20	\$233,000	Quevedo
36	Single Crystal and Thin Film Hybrid Perovskite Materials for Optoelectronic Applications	AFOSR	10/17	10/20	\$325,000	Quevedo
35	Neutron Detector Networks	DHS	10/18	10/23	\$746,000	Quevedo
34	Handheld neutron detectors using thin film devices	NH	05/15	12/31	\$2,100,000	Quevedo
33	Poly-Si grain size control	Texas Instruments	06/18	12/20	\$220,000	Quevedo
32	Si-based radiation detectors	Texas Instruments	02/17	12/19	\$180,000	Quevedo
31	Student/Faculty Exchange UT-Dallas and Mexico	Conacyt	09/19	09/20	\$210,000	Quevedo
30	Neutron Detector Array for Monitoring Neutrons Generated during Heavy Ion Therapy	UTSW	6/16	6/18	\$100,000	Gnade, Quevedo
29	Student/Faculty Exchange between UT-Dallas and Mexico, 2015	Conacyt	9/15	9/16	\$280,000	Quevedo
28	Handheld neutron detectors	NH	5/15	5/17	\$950,000	Quevedo
27	TFR s using CRB2 films	Texas Instruments	1/13	12/16	\$90,000	Quevedo
26	Energy Harvesting and Storage System in a Flexible Substrate	NSF	2/14	8/15	\$49,000	Quevedo
25	Student/Faculty Exchange between UT-Dallas and Mexico, 2014	Conacyt	9/14	9/15	\$280,000	Quevedo
24	Collaborative Research: ARI-MA: Very large area, high sensitivity neutron detection system	NSF	10/1	9/1	\$1,455,189	Quevedo/ Gnade
23	CIMAV Dual degree support for students	CIMAV	9/12	12/14	\$72,000	Quevedo
22	II-VI materials and devices for Radiation Detectors	Nanohol. LLC	9/13	9/14	\$50,000	Quevedo
21	Multifunctional Microelectrode Arrays for Neuroscience Research and Technology Development	NSF	10/11	9/14	\$599,783	Ren., Voit, Quevedo
20	Student/Faculty Exchange between UT-Dallas and Mexico, 2013	Conacyt	9/13	9/14	\$241,000	Quevedo
19	Oxide TFTs for harsh environments	RD Technology	6/13	5/14	\$100,000	Quevedo
18	II-VI and Oxide devices for energy harvesting	Nanjing Electronics	4/13	3/14	\$62,500	Quevedo

17	Modeling, Development and Characterization of Alternate Electrodes for Flexible Electronics Applications	AFOSR	1/12	12/13	\$187,500	Quevedo/ Gnade
16	Low TCR Materials developed by PLD	Texas Instruments	9/12	10/13	\$62,000	Quevedo
15	Photodiodes for blue laser detection	DARPA	9/12	9/13	\$99,500	Quevedo
14	High Performance II-VI Solar Cells	NSF	5/12	9/13	\$28,000	Quevedo
13	Student/Faculty Exchange between UT-Dallas and Mexico, 2012	Conacyt	9/12	9/13	\$96,000	Quevedo
12	Flexible Biosensors	BOSCH	1/12	1/13	\$9,000	Quevedo
11	CIMAV Dual degree support for students	CIMAV	1/11	12/12	\$28,000	Quevedo
10	Student/Faculty Exchange between UT-Dallas and Mexico, 2011	Conacyt	9/11	9/12	\$104,000	Quevedo
9	Flexible Solar Cells based on Chalcogenides	KAUST	6/12	12/12	\$51,500	Quevedo
8	Flexible Membranes	Nanocomp. LLC	6/12	6/13	\$50,000	Quevedo
7	Reliability of Organic Schottky Diodes under Radiation	DARPA	1/12	1/13	\$200,000	Gnade/Quevedo
6	Student/Faculty Exchange between UT-Dallas and Mexico, 2010	Conacyt	9/10	9/11	\$78,000	Quevedo
5	Development of Flexible Membranes / Schottky Diodes	NSF (STTR)	3/1	3/1	\$49,500	Quevedo
4	Large Area Neutron Detectors	Nanohol. LLC	6/10	12/12	\$256,000	Quevedo/ Gnade
3	Development of Super Capacitors on Flexible Substrates	Nanohol. LLC	9/10	9/11	\$165,000	Quevedo
2	Student/Faculty Exchange between UT-Dallas and Mexico (2009)	Conacyt	9/9	9/10	\$45,000	Quevedo
1	Fingerprint sensor for biometric smartcard technology	eSMART	9/8	8/9	\$136,200	Quevedo/ Gnade