CURRICULUM VITAE

PERSONAL

Name	:	Ahmed Shaker Ahmed Zaki Ghazala
Date of Birth	:	8-June-1973
Place of Birth	:	Monofiya, Egypt
Nationality	:	Egyptian
Marital Status	:	Married
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ACADEMIC RECORD

March 2010	:	Ph.D. in Engineering Physics, Ain Shams University, Cairo, Egypt (*Power Devices Design*)
May 2003	:	M.Sc. in Engineering Physics, Ain Shams University, Cairo, Egypt (*Modeling and Simulation of a Novel MIM Triode Structure*)
Sept. 1998	:	Diploma in Engineering Physics, Faculty of Engineering, Ain Shams University, Cairo, Egypt
May 1996	:	B.Sc. in Electrical Engineering - Electronics Section - Faculty of Engineering, Ain Shams University, Cairo, Egypt (*Project title: "Modeling and Simulation of a Mobile Satellite Link"*)

ACADEMIC POSITIONS

August 2020 – March 2021	:	Postdoc – Faculty of Electrical and Computer Engineering, North Carolina State University (NCSU), USA
2021 –		Professor of Engineering Physics - Faculty of Engineering, Ain Shams University, Cairo, Egypt
2016 – 2021	:	Associate Professor - Faculty of Engineering, Ain Shams University, Cairo, Egypt
2018 – 2019	:	Adjunct Faulty - School of Sciences and Engineering, American University in Cairo (AUC), Cairo, Egypt
2010 – 2016	:	Dr. of Engineering Physics - Faculty of Engineering, Ain Shams University, Cairo, Egypt
2003 – 2010	:	Assistant lecturer, Faculty of Engineering, Ain Shams University, Cairo, Egypt
1997 – 2003	:	Assistant, Faculty of Engineering, Ain Shams University, Cairo, Egypt

RESEARCH INTERESTS

My current research topics focus on device physics and simulation of new tunneling devices like tunneling FET (TFET) and CNTFET. Recently, my research experience has been expanded to the design of metal-insulator-metal (MIM) and MIIM diodes utilized in rectenna solar cells. I have been involved in modeling and simulation of silicon-based low-cost microstructures and perovskite solar cells, 3D radiation detectors and bipolar power devices including power diodes and thyristors. Recently, I joined NCSU as a postdoctoral researcher and I was involved in the fabrication and simulation of GaN-based LEDs.

EXPERIENCE

1. TEACHING

- Modern Physics
- Vibrations and Waves
- Solid State Electronics
- Electronic Materials
- Solid state physics
- Physics of semiconductor devices
- Electronic Circuits
- Electrostatics and Magnetostatics
- Optical and Thermal Physics

2. RESEARCH AREA

- Power devices simulation and modeling:
    - Compact modeling for circuit simulators (SPICE and Synopsys Saber)
    - Parameter extraction using circuit measurements
- Solar cells simulation using TCAD (Silvaco), SCAPS-1D and SETFOS
- Modeling and simulation of MODFET devices using TCAD (Silvaco)
- Modeling and simulation of inorganic and organic LEDs using TCAD (Silvaco), SiLENSe and SETFOS
- Modeling and simulation of Carbon Nanotube FETs using MATLAB
- Tunneling FET and related devices both simulation and analytical modeling
- Fabrication and simulation of GaN-based LEDs

3. STUDIES AND PROJECTS

- Supervising M.Sc. (3) student in Engineering Physics and Mathematics Dept., Faculty of Engineering, Ain Shams University (ASU) (Topics: TFET, Solar Cells and CNT Quantum Simulation)
- Co-supervising Ph.D. (5) student in Electronics & Comm. Eng. Dept., Faculty of Engineering, Ain Shams University (ASU) (Topics: Solar Cells and 3D Radiation Detectors)
- Co-supervising Ph.D. (1) student in Electronics & Comm. Eng. Dept., AAST (Topics: TFET)

- Co-supervising M.Sc. (3) student in Electronics & Comm. Eng. Dept., AAST (Topics: TFET and Solar Cells)
- Co-supervising M.Sc. (1) student in Electronics & Comm. Eng. Dept., German University in Cairo (GUC) (Topic: SiGe-based MODFET)
- Co-supervising M.Sc. (1) student in Electronics Dept., British University in Egypt (BUE) (Topic: TFET)
- Co-supervising M.Sc. (11) student in Electronics & Comm. Eng. Dept., Faculty of Engineering, Ain Shams University (ASU) (Topics: Solar Cells, TFET, MPPT in solar cells)
- Participating in JAMILA project Joint mAster of Mediterranean Initiatives on renewabLe and sustAinable energy Project Number: 544339-TEMPUS-1-2013-1-IT-TEMPUS-JPCR Grant Agreement Number 2013-4541/001-001
- Participating as a researcher in INFIERI project; INFIERI (intelligent fast interconnected and efficient devices for frontier exploitation in research and industry program), The U.S. Department of Energy and National Science Foundation, the Italian Instituto Nazionale di Fisica Nucleare, the EU Community FP7-2012- ITN contract 317446
- Participating as a researcher in "Development of computer-aided simulation tool for solar cells" Project number: 43508006 (Umm Al Qura University, Saudi Arabia)
- Research Deanship of University of Ha'il - Saudi Arabia, project number RG-19 1279
- Research Deanship of University of Ha'il - Saudi Arabia, project number RG-20 047

4. PROFESSIONAL ACTIVITIES

- Reviewer: *IEEE Transaction on Electron Devices; IEEE Electron Devices Letters; IEEE Transaction on Power Electronics; International Journal of Electronics; Materials Research Express; Semiconductor Science and Technology; Journal of the Brazilian Society of Mechanical Sciences and Engineering; International Journal of Numerical Modelling: Electronic Networks, Devices and Fields; AEÜ - International Journal of Electronics and Communications; Optical Materials; More than three journals in mdpi*

- Guest Editor of Special Issue "Modeling and Simulation of Solar Cells" in Energies Journal
- Session Chair: 2018 3rd International Conference on Energy Materials and Applications, Zamora, Spain
- CONFERENCES ATTENDED
  - International Conference on Microelectronics (ICM) – Cairo, Egypt 2003 and 2010
  - IEEE PHOTOVOLTAIC SPECIALISTS CONFERENCE (PVSC) – Portland, OR, 2016
  - IOP 3rd International Conference on Energy Materials and Applications, Zamora, Spain – Spain, 2018

5. TRAINING AND WORKSHOPS

- Moodle Online Learning - Ain shams University Training Center
- Search and Research - Ain shams University Training Center
- Egyptian Knowledge Bank (EKB) - Ain shams University Training Center
- Academic Advising - Ain Shams University Quality-Assurance Center.
- Credit-hour workshop - Ain shams University Quality-Assurance Center
- Mendeley and Endnote workshop - Ain shams University Quality-Assurance Center
- Laser Safety for non-clinical use – North Carolina State University, USA
- Analytical X-ray safety - North Carolina State University, USA
- NC State Data Security Training - North Carolina State University, USA
- Hall measurements - North Carolina State University, USA
- Photo luminance measurements - North Carolina State University, USA
- X-ray diffraction measurements - North Carolina State University, USA

6. AWARDS AND PRIZES:

- Distinction with honor degree, B.Sc. (1996)
- Outstanding reviewer award (2019) in Semiconductor Science and Technology journal (https://publishingsupport.iopscience.iop.org/questions/semiconductor-science-and-technology-2019-reviewer-awards/)
- Granted the best oral presentation award at the ICECT conference (2020)
- Publication awards from Ain Shams University each year from 2014 till now

7. PUBLICATIONS

- **Books and Book chapters**

1. A. Zekry, **A. Shaker**, M. Salem, "Solar Cells and Arrays: Principles, Analysis, and Design," Editor: Imene Yahyaoui, Advances in Renewable Energies and Power Technologies, Elsevier, 2018, Pages 3-56, ISBN 9780128129593.
2. M. Abouelatta, **A. Shaker** and C. Gontrand, "Smart Power Integration," iSTE Press (Co-publisher: Wiley), ISBN: 9781786308375, 2022.
3. M. Abouelatta, **A. Shaker** and C. Gontrand, "Intégration en électronique de puissance," iSTE Press, submitted.

- **Conference proceedings**

1. **A. Shaker** and A. Zekry, "Theoretical investigation of single- and dual-gate MITT nanometer transistors," The 1st Egyptian Workshop on Advancements of Electronic Devices (EWAED), Sept. 2002, Cairo, Egypt.
2. **A. Shaker** and A. Zekry, "Theoretical investigation of single- and dual-gate metal insulator tunnel transistors," *IEEE* 15th International Conference on Microelectronics 2003, ICM 03, Dec. 2003, Cairo, Egypt.
3. **A. Shaker**, A. Zekry, O. A. Omar and S. Gamal, "An Improved Power Diode Model Based on Finite Difference Method," the 2nd International Conference on Advanced Computer Theory and Engineering (ICACTE 2009), Sept. 2009, Cairo, Egypt.

4. **A. Shaker** and A. Zekry, "A Modified PSPICE Model for the Power PIN Diode," *IEEE* 22nd International Conference on Microelectronics 2010, ICM 10, Dec. 2010, Cairo, Egypt.
5. M. S. Salem, **A. Shaker**, M. Abouelatta and A. Zekry, "Effect of Base Width Variation on the Performance of a Proposed Ultraviolet Low Cost High Efficiency Solar Cell Structure," *IEEE* 38th Photovoltaic Specialist Conference (PVSC), Austin Convention Center in Austin, Texas June 3-8, 2012.
6. M. S. Salem, A. Zekry, **A. Shaker** and M. Abouelatta, "Design and Simulation of Proposed Low Cost Solar Cell Structures Based on Heavily Doped Silicon Wafers," *IEEE* 43th Photovoltaic Specialist Conference (PVSC), 2016.
7. A. Ellakany, **A Shaker**, M Abouelatta, I. M. Hafez and C Gontrand, "Modeling and simulation of a hybrid 3D silicon detector system using SILVACO and Simulink/MATLAB framework," *IEEE* 28th International Conference on Microelectronics (ICM), 2016, pp. 377-380.
8. O. Abdelraouf, **A. Shaker**, N. Allam, "Design of optimum back contact plasmonic nanostructures for enhancing light coupling in CZTS solar cells," Photonics for Solar Energy Systems, VII 10688, 1068817, 2018.
9. O. Abdelraouf, **A. Shaker**, N. Allam, "Design methodology for selecting optimum plasmonic scattering nanostructures inside CZTS solar cells," Photonics for Solar Energy Systems, VII 10688, 1068816, 2018.
10. O. Abdelraouf, **A. Shaker**, N. Allam, "Using all dielectric and plasmonic cross grating metasurface for enhancing efficiency of CZTS solar cells," Nanophotonics. VII 10672, 106723R, 2018.
11. O. Abdelraouf, **A. Shaker**, N. Allam, "All dielectric and plasmonic cross-grating metasurface for efficient perovskite solar cells," SPIE Photonic Europe 2018, France, 22 - 26 April 2018.
12. O. Abdelraouf, **A. Shaker**, N. Allam, "Enhancing light absorption inside CZTS solar cells using plasmonic and dielectric wire grating metasurface," SPIE Photonic Europe 2018, France, 22 - 26 April 2018.
13. O. Abdelraouf, **A. Shaker**, N. Allam, "Plasmonic nanoscatter antireflective coating for efficient CZTS solar cells," Photonics for Solar Energy Systems VII 10688, 1068815, 2018.
14. O. Saif, M Abouelatta**, A Shaker**, M. K. Elsaid, "On the optimization of InGaP/GaAs/InGaAs triple-junction solar cell," IOP Conference Series Materials Science and Engineering 446:012010, December 2018. DOI: 10.1088/1757-899X/446/1/012010

15. M. Elnaggar, **A. Shaker** and M. Fedawy, "Modified Hetero-Gate-Dielectric TFET for Improved Analog and Digital Performance," 13th International Conference on Computer Engineering and Systems (ICCES) Conference, Cairo, Egypt, 2018.
16. D. Khodair, **A. Shaker**, H. E. Abd El Munim, A. Saeed and M. Abouelatta, "A Comparative Study Between Modified MPPT Algorithms Using Different Types of Solar Cells," In 2020 *2nd International Conference on Smart Power & Internet Energy Systems* (*SPIES*), IEEE, pp. 215-218, 2020.
17. Sh. Fouda, M. S. Salem, A. Saeed, **A. Shaker** and M. Abouelatta, "Thirteen-Level Modified Packed U-Cell Multilevel Inverter for Renewable-Energy Applications," In 2020 *2nd International Conference on Smart Power & Internet Energy Systems (SPIES)*, IEEE, pp. 431-435, 2020.
18. Y. Morgan, M. Abouelatta, M. El-Banna and **A. Shaker**, "Tapered-Shape Channel Engineering for Suppression of Ambipolar Current in TFET," In *2020 IEEE 5th International Conference on Integrated Circuits and Microsystems (ICICM)* (pp. 197-200). IEEE, October 2020.
19. A. Nabil, **A. Shaker**, M. Abouelatta, H. Ragai and C. Gontrand, "Tunneling FET Calibration Issues: Sentaurus vs. Silvaco TCAD," *In Journal of Physics: Conference Series* (Vol. 1710, No. 1, p. 012003), IOP Publishing, November 2020.
20. H. A. Atia, A. Zekry and **A. Shaker**, "Solar Cell Modification for Large Area Motion Detection: Proof of Concept," In *2020 8th International Japan-Africa Conference on Electronics, Communications, and Computations (JAC-ECC)* (pp. 96-99), IEEE, December 2020.
21. M. Elgamal, M. Eliwy, **A. Shaker** and M. Fedawy, "Suppressing Ambipolar Conduction in Silicon DGTFET: Comparing Gate-to-Drain Overlapping/Underlapping Structure," In *2021 International Telecommunications Conference (ITC-Egypt)* (pp. 1-5). IEEE, July 2021.
22. M. Eliwy, M. Elgamal, M. Salem, M. Fedawy and **A. Shaker**, "Gate-on-Source TFET Analytical Model: Role of Mobile Charges and Depletion Regions," In *2021 3rd Novel Intelligent and Leading Emerging Sciences Conference (NILES)* (pp. 345-349). IEEE, October 2021.
23. M. Elgamal, and **A. Shaker**, "Numerical Corrections to Estimate Depletion Region Width in Pseudo-two-dimensional Model of Double-Gate Tunneling FET," In *2021 3rd Novel Intelligent and Leading Emerging Sciences Conference (NILES)* (pp. 97-102). IEEE, October 2021.
24. M. S. Salem, M. El-Banna, M. Abouelatta, A. Saeed, and **A. Shaker**, "A Comparative Simulation Study of DG-MOSFETs: PCMS Approach in FETMOSS vs. CMS in Silvaco TCAD," In *2021 3rd Novel Intelligent and Leading Emerging Sciences Conference (NILES)* (pp. 305-307). IEEE, October 2021.
25. A. Abdelaziz, M. Elgamal, **A. Shaker**, M. Fedawy and Y. Ismail, "MATLAB-Based Simulator for Metal-Insulator-Metal Diodes and Transistors," *2022 International Telecommunications Conference (ITC-Egypt)*, 2022, pp. 1-6, doi: 10.1109/ITC-Egypt55520.2022.9855731.

26. M. Mousa, M.M. Salah, A. Zekry, M. Abouelatta, **A. Shaker**, F.Z. Amer, R.I. Mubarak, and A. Saeed, "Simulation of High open-circuit voltage Perovskite/CIGS-GeTe tandem cell," In *2022 IEEE 49th Photovoltaics Specialists Conference (PVSC)* (pp. 1230-1234). IEEE, June 2022.
27. O.M. Saif, A. Zekry, **A. Shaker**, M. Abouelatta, and A. Saeed, "Efficient self-protected thin film c-Si solar cell against reverse-biasing condition: A simulation study," In *2022 IEEE 49th Photovoltaics Specialists Conference (PVSC)* (pp. 0336-0338). IEEE, June 2022.
28. M.M. Salah, A. Zekry, M. Abouelatta, **A. Shaker**, M. Mousa, and A. Saeed, "Analysis of an Efficient ZnO/GeTe Solar Cell Using SCAPS-1D," In *Proceedings of Seventh International Congress on Information and Communication Technology*, Springer, Singapore, pp. 677-685, 2023.

- **Journal Papers**

1. **A. Shaker** and A. Zekry, "A New and Simple Model for Plasma- and Doping-Induced Band Gap Narrowing," *Journal of Electron Devices*, Vol. 8, 2010, pp. 293-299.
2. **A. Shaker**, G. T. Sayah, M. Abouelatta and A. Zekry, "Thyristor Compact Modeling based on Gummel-Poon Model Including Parameter Extraction Procedure," *International Journal of Computer Applications*, Vol. 61, No. 16, January 2013, pp. 12-20.
3. **A. Shaker**, M. Abouelatta, G. T. Sayah, and A. Zekry, "Comprehensive physically-based modeling and Simulation of Power Diodes with Parameter Extraction using Matlab," *IET Power Electronics*, Vol. 7, No. 10, 2014, pp. 2464-2471.
4. M. Abouelatta, **A. Shaker**, G. T. Sayah, C. Gontrand and A. Zekry, "Design considerations of high voltage RESURF nLDMOS: An analytical and numerical study," *Ain Shams Engineering Journal*, Vol. 6, No. 2, 2015, pp. 501–509.
5. M. Ossaimee, S. Gamal and **A. Shaker**, "Gate dielectric constant engineering for suppression of ambipolar conduction in CNTFETs," *IET Electronics Letters*, Vol. 51, No. 6, March 2015, pp. 503-504.
6. **A. Shaker**, M. Ossaimee, A. Zekry and M. Abouelatta, "Influence of Gate Overlap Engineering on Ambipolar and High Frequency Characteristics of Tunnel-CNTFET," *Superlattices and Microstructures*, Vol. 86, October 2015, pp. 518–530.
7. M. Abouelatta, **A. Shaker**, C. Gontrand and M. Ossaimee, "Performance of standard and double-sided 3D-radiation detectors under the impact of a temperature pulse," *IET Electronics Letters*, Vol. 51, No. 21, October 2015, pp. 1668–1670.
8. T. M. Abdolkader, A. G. Alahdal, **A. Shaker**, and W. Fikry, "ISFET pH-Sensor Sensitivity Extraction Using Conventional MOSFET Simulation Tools," *IJCEA*, Vol. 6, No. 5, 2015, pp. 346-351.
9. **A. Shaker**, M. Abouelatta, M. El-Banna, M. Ossaimee and A. Zekry, "Full electrothermal physically-based modeling of the power diode using PSPICE", *Solid State Electronics*, Vol. 116, 2016, pp. 70-79.

10. A. Zekry, A. Ibrahim, A. Attallah, M. Abouelatta and **A. Shaker**, "Four Voltmeter Vector Impedance Meter Based on Virtual Instrumentation," *MAPAN-Journal of Metrology Society of India,* Vol. 31, No. 3, 2016, pp. 159–167.
11. Y. Elogail, E. Kasper, F. Gunzer, **A. Shaker**, and J. Schulze, "Investigation of Capacitance Voltage Characteristics of Strained Si/SiGe n-Channel MODFET Varactor," *Solid State Sciences,* Vol. 56, 2016, pp. 73-78.
12. **A. Shaker**, M. Ossaimee and A. Zekry, "Effect of asymmetrical double-pockets and gate-drain underlap on Schottky barrier tunneling FET: Ambipolar conduction vs. high frequency performance", *Superlattices and Microstructures,* Vol. 96, August 2016, pp. 179–190.
13. M. Ossaimee and **A. Shaker**, "Performance and electrical characteristics of hybrid carbon nanotube field effect transistors", *IET Micro & Nano Letters,* Vol. 11, No. 9, 2016, pp. 476 – 479.
14. **Shaker**, M. El Sabbagh and M. El-Banna, "Influence of Drain Doping Engineering on the Ambipolar Conduction and High-Frequency Performance of TFETs," *IEEE Transactions on Electron Devices,* Vol. 64, No. 9, 2017, pp. 3541-3547.
15. A. Ellakany, M. Abouelatta, **A. Shaker**, G. Sayah and M. El-Banna, "TCAD simulation of a proposed 3D CdZnTe detector," *IET The Journal of Engineering*, Vol. 2017, No. 10, 2017, pp. 574 – 576.
16. A. Zekry, **A. Shaker**, M. Ossaimee, M. S. Salem and M. Abouelatta, "A comprehensive semi-analytical model of the polysilicon emitter contact in bipolar transistors," *Journal of Computational Electronics,* Vol. 17, No. 1, 2018, pp. 246 – 255.
17. **A. Shaker** and M. Ossaimee, "Current Oscillations in Schottky-Barrier CNTFET: Towards Resonant Tunneling Device Operation," *Semiconductor Science and Technology,* Vol. 33, No. 3, 035012, 2018.
18. N. Salem, M. Ossaimee, **A. Shaker** and M. Abouelatta, "Electrical Characteristics of T-CNTFET: Partially-Gated Channel vs. Doping Engineering," *ECS Journal of Solid State Science and Technology*, Vol. 7, No. 3, M1-M6, 2018.
19. M. Abouelatta, **A. Shaker** and C. Gontrand, "Impact of TSV location in HVIC on CMOS operation: A mixed-mode TCAD simulation study," *Microelectronics Journal*, vol. 75, pp. 113-118, 2018.
20. T. Abdolkader, **A. Shaker** and AN. Alahmadi, "Numerical simulation of tunneling through arbitrary potential barriers applied on MIM and MIIM rectenna diodes," *European Journal of Physics,* vol. 39, no. 4, 045402, 2018.
21. O. Abdelraouf, **A. Shaker**, N. Allam, "Novel design of plasmonic and dielectric antireflection coatings to enhance the efficiency of perovskite solar cells," *Solar Energy*, vol. 174, pp. 803-814, 2018.
22. O. Abdelraouf, **A. Shaker**, N. Allam, "Front dielectric and back plasmonic wire grating for efficient light trapping in perovskite solar cells," *Optical Materials,* vol. 86, pp. 311-317, 2018.

23. **A. Shaker**, M. El Sabbagh and M. El-Banna, "Impact of nonuniform gate oxide shape on TFET performance: A reliability issue," *Physica E: Low-dimensional Systems and Nanostructures*, Vol. 106, pp. 346-351, 2019.
24. M. M. Salah, K. M. Hassan, M. Abouelatta and **A. Shaker**, "A Comparative Study of Different ETMs in Perovskite Solar Cell with Inorganic Copper Iodide as HTM," *Optik – International Journal for Light and Electron Optics*, vol. 178, pp. 958-963, 2019.
25. M. S. Salem, A. Zekry, **A. Shaker**, M. Abouelatta and T. Abdolkader, "Performance Enhancement of a Proposed Solar Cell Microstructure Based on Heavily Doped Silicon Wafers," *Semiconductor Science and Technology*, vol. 34, 035012 (10pp), 2019.
26. M. Elnaggar, **A. Shaker** and M. Fedawy, "A comprehensive investigation of TFETs with semiconducting silicide source: Impact of gate drain underlap and interface traps," *Semiconductor Science and Technology*, vol. 34, issue 4, 045015 (11pp), 2019.
27. W. Abdelaziz, **A. Shaker**, M. Abouelatta, and A. Zekry, "Possible efficiency boosting of non-fullerene acceptor solar cell using device simulation," *Optical Materials*, vol. 91, pp. 239-245, 2019.
28. M. M. Salah, M. Abouelatta, **A. Shaker**, K. M. Hassan and A. Saeed, "A Comprehensive Simulation Study of Hybrid Halide Perovskite Solar Cell with Copper Oxide as HTM," *Semiconductor Science and Technology*, vol. 34, issue 11, 115009 (10pp), 2019.
29. M. Elgamal, A. Sinjab, M. Fedawy and **A. Shaker**, "Effect of doping profile and the work function variation on performance of double-gate TFET," *International Journal of Integrated Engineering*, vol. 11, no. 7, pp. 40-46, 2019.
30. M. Abouelatta, M. S. Salem, **A. Shaker**, M. Elbanna, A. Zekry and C. Gontrand, "Parasitic Suppression in 2D Smart Power ICs Using Deep Trench Isolation: A Simulation Study," *National Academy Science Letters*, *43*, pp.167-170, 2020.
31. **A. Shaker**, A. Maged, Ali Elshorbagy, A. AbouElainain and M. Elsabbagh, "Source-all-around tunnel field-effect transistor (SAA-TFET): proposal and design," *Semiconductor Science and Technology*, vol. 35, issue 2, 025007 (13pp), 2020.
32. S. Abdelaziz, A. Zekry, **A. Shaker** and M. Abouelatta, "Investigating the performance of formamidinium tin-based perovskite solar cell by SCAPS device simulation," *Optical Materials*, vol. 101, p. 109738, 2020.
33. A. Nabil, J. A. Bernardo, Y. Ma, M. Abouelatta, **A. Shaker**, L. F. Bouchet, H. Ragai and C. Gontrand, "Electrical modeling of tapered TSV including MOS-Field effect and substrate parasitics: Analysis and application," *Microelectronics Journal*, vol. 100, p.104797, 2020.
34. **A. Shaker**, "Comments on "An Analytical Surface Potential Model Accounting for the Dual-Modulation Effects in Tunnel FETs"," *IEEE Transactions on Electron Devices*, vol. 67, no. 7, pp. 3014-3015, July 2020, doi: 10.1109/TED.2020.2994490.
35. A. Salah, M. Ossaimee and **A. Shaker**, "Impact of high-doped pockets on the performance of tunneling CNTFET," *Superlattices and Microstructures*, vol. 145, p. 106622, 2020.

36. M. S. Salem, A. J. Alzahrani, R. A. Ramadan, A. Alanazi, **A. Shaker**, M. Abouelatta, C. Gontrand, M. Elbanna and A. Zekry, "Physically Based Analytical Model of Heavily Doped Silicon Wafers Based Proposed Solar Cell Microstructure," *IEEE Access*, vol. 8, pp. 138898-138906, 2020, doi: 10.1109/ACCESS.2020.3012657.

37. F. Shokry, A. Shaker, M. Elsaid and M. Abouelatta, "Design of Extended Channel Ge-source TFET for Low Power Applications," *International Journal of Integrated Engineering*, vol. 12, no. 8, pp.191-197, 2020.

38. M. Ossaimee, N. Salem, M. Abouelatta and **A. Shaker**, "Enhancement of Tunneling CNTFET Performance Using a High-k Dielectric Pocket," *ECS Journal of Solid State Science and Technology*, vol. 9, no. 10, p.101002, 2020.

39. W. Abdelaziz, A. Zekry, **A. Shaker** and M. Abouelatta, "Numerical study of organic graded bulk heterojunction solar cell using SCAPS simulation," *Solar Energy*, vol. 211, pp. 375-382, 2020.

40. D. Khodair, M. S. Salem, **A. Shaker**, H. E. Abd El Munim and M. Abouelatta, "Application of Modified MPPT Algorithms: A Comparative Study between Different Types of Solar Cells," *Applied Solar Energy*, vol. 56, no. 5, pp. 309–323, 2020.

41. A. Ellakany, M. Abouelatta, **A. Shaker**, C. Gontrand and I.M. Hafez, "Design and Simulation of 3-D CdTe Pillar Detectors," *IEEE Transactions on Electron Devices*, vol. 67, no. 12, pp. 5564-5571, 2020.

42. M. S. Salem, A. Zekry, and **A. Shaker**, "Investigation of Base High Doping Impact on the npn Solar Cell Microstructure Performance Using Physically Based Analytical Model," *IEEE Access*, vol. 9, pp. 16958-16966, 2021.

43. M. S. Salem, O. M. Saif, **A. Shaker**, M. Abouelatta, A. J. Alzahrani, A. Alanazi, M. K. Elsaid and R. A. Ramadan, "Performance Optimization of the InGaP/GaAs Dual-Junction Solar Cell Using SILVACO TCAD," *International Journal of Photoenergy*, vol. 2021, Article, ID 8842975, 12 pages, 2021.

44. **A. Shaker**, Marwa S. Salem, A. Zekry, M. El-Banna, G.T. Sayah, M. Abouelatta, "Identification of power PIN diode design parameters: Circuit and device-based simulation approach," *Ain Shams Engineering Journal*, vol. 12, no. 3, pp. 3141-3155, 2021.

45. H. Abdelmoneim, A. Zekry and **A. Shaker**, "Development of solar cell for large area position detection: proof of concept," *Heliyon*, vol. 7, no. 5, p. e07019, 2021.

46. **A. Shaker**, M. Elgamal, M. Fedawy, H. Kamel, "Impact of gate-on-source misalignment on the analog and digital performance of tunnel FET," *Pramana - Journal of Physics*, vol. 95, no. 3, p. 124, 2021.

47. N. Gamal, S.H. Sedky, **A. Shaker**, M. Fedawy, "Design of lead-free perovskite solar cell using Zn1-xMgxO as ETL: SCAPS device simulation," *Optik*, vol. 242, p. 167306, 2021.

48. A. Salah, **A. Shaker**, M. El-Banna, M. Ossaimee, "Impact of source doping profile on the performance of CNT TFETs and MOSFETs: Design aspects for fabrication tolerance," *Semiconductor Science and Technology*, vol. 36, no. 7, p. 075012, 2021.

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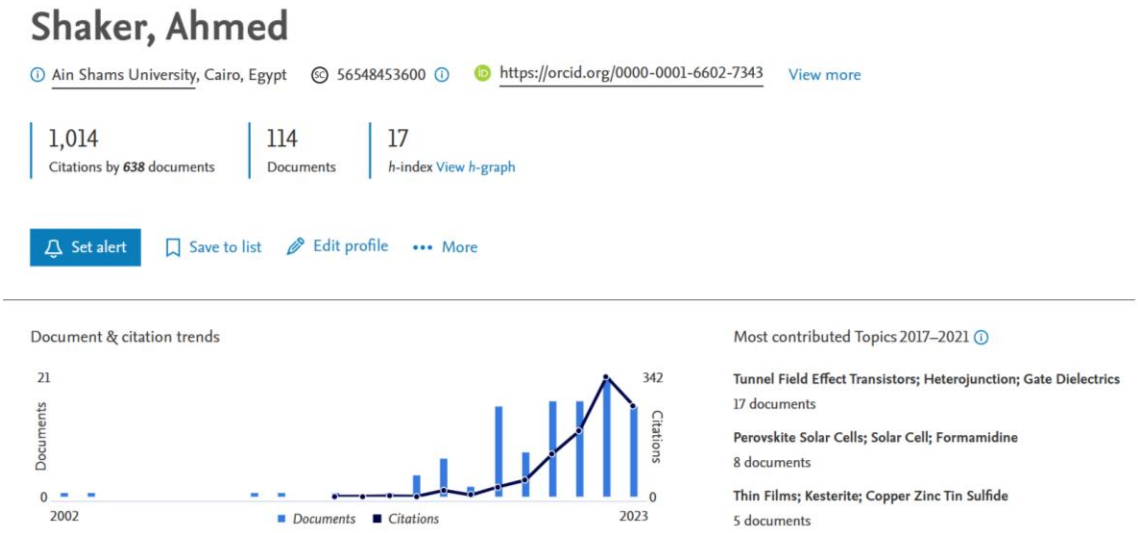

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