

Curriculum Vitae - 28 December 2021

Khalil Tamersit, PhD, *IEEE Senior Member*



- Personal Record

Birth date and place: 14 November 1988, Batna, Algeria.

Citizenship: Algerian.

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Affiliation: ¹ Department of Electronics and Telecommunications, University 8 May 1945 Guelma, Guelma, 24000, Algeria.
² Department of Electrical and Automatic Engineering, Université 8 Mai 1945 Guelma, Guelma 24000, Algeria.
³ Laboratory of Inverse Problems, Modeling, Information and Systems (PIMIS), University 8 May 1945 Guelma, Guelma 24000, Algeria.

Position: Associate Professor at Guelma University

Scientific Profiles: https://www.researchgate.net/profile/Khalil_Tamersit
<https://scholar.google.fr/citations?user=aokDF1cAAAAJ&hl=fr>
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- Education

2011-2018 **Ph.D.** in Medical Electronics, from the University of Batna 2, Batna, Algeria. 2008-

2010 **M.Sc.** in Biomedical Electronics, from the University of Batna, Batna, Algeria. 2005-

2008 **B.Sc.** in Medical Instrumentation, from the University of Batna, Batna, Algeria.

- Research Interests

- The modeling and simulation of new nanoelectronic devices and medical devices.
- Modeling, control, and optimization of (bio)sensing systems.
- The application of artificial intelligence (Artificial Neural Networks, Fuzzy Logic, ANFIS, Genetic Algorithms, Ant Colony Optimization ...etc.) in smart (bio)sensing and nanoelectronic simulation.
- The quantum simulation of carbon-based (bio)sensors (e.g. carbon nanotube-based (bio)sensors, graphene and its derivatives-based (bio)sensors, graphene nanoribbon-based (bio)transistors...etc.).
- The application of emerging nanomaterials in sensing and medical engineering applications.
- Recently, Tamersit's interests include the emerging ultrascaled transistors for Beyond-Silicon technology, the optoelectronics, and nano-actuators.

-Skills & Activities

Scientific Skills

- Mastery of some quantum simulation software for (bio)nanoelectronic devices such as NanoTCAD ViDES of nanoHUB , Quantum Wise, and MOSCNT.
- Ability to develop complex source codes and simulation programs (2D/3D FDM, quantum NEGF, self-consistent algorithms, wavelets-based computation...) on MATLAB and other programming languages in order to propose, study, and optimize new nanoelectronic and biomedical devices.
- The ability to bridge the gap between disciplines (e.g. Engineering, medicine, electronics, nanaomaterials, and bionanotechnology).
- A good analytical mind, and capability to propose new research plans targeting high quality publications.
- Good experience in writing scientific articles.

Reviewer Record - Based on the **Publons** web site (*Powered by Web of Science*), Dr. Khalil Tamersit has reviewed more than 120 papers for high reputed journals such as:

Journal	Publisher	Impact Factor
IEEE Transactions on Nanotechnology.	IEEE	2.57
IEEE Transactions on Electron Devices.	IEEE	2.91
IEEE Transactions on VLSI.	IEEE	2.31
IEEE Sensors Journal.	IEEE	3.30
IEEE Access.	IEEE	3.36
Superlattices and Microstructures.	Elsevier	2.65
Diamond and Related Materials.	Elsevier	3.31
Int. J. Electron. Commun. (AEÜ).	Elsevier	3.18
Microelectronics Journal.	Elsevier	1.60
Results in Physics.	Elsevier	4.47
Carbon Trends.	Elsevier	N/A
SN Applied Sciences.	Springer Nature	N/A
Applied Physics A.	Springer Nature	2.58
Advances in Nano Research.	Techno Press	13.05
ECS J. Solid State Sci. Technol.	IOP	2.07
Journal of Circuits, Systems and Computers.	WSP	1.33
ACS Applied Electronic Materials.	ACS	3.31

Languages Arabic: Native language.
English: Spoken and written (good). French:
Spoken and written (good).

Scientific Memberships

- Member of the IEEE EMBS Technical Committee on Wearable Biomedical Sensors and Systems.
- Member of the IEEE EMBS Technical Committee on Bionanotechnology & Bio-MEMS.
- Senior Member of the Institute of Electrical and Electronics Engineers (IEEE).
- Member of International Association of Advanced Materials (IAAM).
- Member of the International Association of Engineers (IAENG).
- Member of the IEEE Electron Devices Society (EDS).
- Member of the American Chemical Society (ACS).

- Professional Background

- 2011-2018 : Fixed-Term Lecturer, University of Batna (2), Batna, Algeria.
- 21/11/2018 - till now (2021): Associate Professor, University 8 May 1945 of Guelma, Guelma, Algeria.

- B.Sc. and Master Supervision

- Supervision of 5 B.Sc. and 4 Master in engineering and Electronics.
- Member in several M.sc. Supervisory Committees.

- Published Papers in Referred Journals (WoS indexed journals). “Most of them as first and corresponding author”

- 1) **K. Tamersit** and F. Djeflal, “Double-gate graphene nanoribbon field-effect transistor for DNA and gas sensing applications: Simulation study and sensitivity analysis,” *IEEE Sensors Journal*, vol. 16, no. 11, pp. 4180–4191, Jun. 2016. (Impact Factor: **3.30**).
- 2) **K. Tamersit** and F. Djeflal, “A novel graphene field-effect transistor for radiation sensing application with improved sensitivity: Proposal and analysis,” *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, vol. 901, pp. 32–39, Sep. 2018. (Impact Factor: **1.45**).
- 3) **K. Tamersit** and F. Djeflal, “Boosting the performance of a nanoscale graphene nanoribbon field-effect transistor using graded gate engineering,” *Journal of Computational Electronics*, vol. 17, no. 3, pp. 1276–1284, Jun. 2018. (Impact Factor: **1.80**).
- 4) **K. Tamersit**, “A computational study of short-channel effects in double-gate junctionless graphene nanoribbon field-effect transistors,” *Journal of Computational Electronics*, vol. 18, no. 4, pp. 1214–1221, Jul. 2019. (Impact Factor: **1.80**).
- 5) **K. Tamersit**, “Boosting the performance of an ultrascaled carbon nanotube junctionless tunnel field-effect transistor using an ungated region: NEGF simulation,” *Journal of Computational Electronics*, vol. 18, no. 4, pp. 1222–1228, Aug. 2019. (Impact Factor: **1.80**).
- 6) **K. Tamersit** and F. Djeflal, “A computationally efficient hybrid approach based on artificial neural networks and the wavelet transform for quantum simulations of graphene nanoribbon FETs,” *Journal of Computational Electronics*, vol. 18, no. 3, pp. 813–825, May 2019. (Impact Factor: **1.80**).
- 7) **K. Tamersit** and F. Djeflal, “Carbon nanotube field-effect transistor with vacuum gate dielectric for label-free detection of DNA molecules: A computational investigation,” *IEEE Sensors Journal*, vol. 19, no. 20, pp. 9263–9270, Oct. 2019. (Impact Factor: **3.30**).
- 8) **K. Tamersit**, “An ultra-sensitive gas nanosensor based on asymmetric dual-gate graphene nanoribbon field-effect transistor: Proposal and investigation,” *Journal of Computational Electronics*, vol. 18, no. 3, pp. 846–855, May 2019. (Impact Factor: **1.80**).
- 9) **K. Tamersit**, “A new ultra-scaled graphene nanoribbon junctionless tunneling field-effect transistor: Proposal, quantum simulation, and analysis,” *Journal of Computational Electronics*, vol. 19, no. 1, pp. 170–176, Nov. 2019. (Impact Factor: **1.80**).

- 10) **K. Tamersit**, "Performance assessment of a new radiation dosimeter based on carbon nanotube field-effect transistor: A quantum simulation study," *IEEE Sensors Journal*, vol. 19, no. 9, pp. 3314–3321, May 2019. (Impact Factor: **3.30**).
- 11) **K. Tamersit**, "Quantum simulation of a junctionless carbon nanotube field-effect transistor with binary metal alloy gate electrode," *Superlattices and Microstructures*, vol. 128, pp. 252–259, Apr. 2019. (Impact Factor: **2.65**).
- 12) **K. Tamersit**, "Improving the performance of a junctionless carbon nanotube field-effect transistor using a split-gate," *Int. J. Electron. Commun. (AEÜ)*, vol. 115, p. 153035, Feb. 2020. (Impact Factor: **3.18**).
- 13) **K. Tamersit**, "Computational study of p-n carbon nanotube tunnel field-effect transistor," *IEEE Transactions on Electron Devices*, vol. 67, no. 2, pp. 704–710, Feb. 2020. (Impact Factor: **2.91**).
- 14) **K. Tamersit**, "Performance enhancement of an ultra-scaled double-gate graphene nanoribbon tunnel field-effect transistor using channel doping engineering: Quantum simulation study," *AEU - International Journal of Electronics and Communications*, vol. 122, p. 153287, Jul. 2020. (Impact Factor: **3.18**).
- 15) **K. Tamersit**, M. Kotti, and M. Fakhfakh, "A new pressure microsensor based on dual-gate graphene field-effect transistor with a vertically movable top-gate: Proposal, analysis, and optimization," *AEU - International Journal of Electronics and Communications*, vol. 124, p. 153346, Sep. 2020. (Impact Factor: **3.18**).
- 16) **K. Tamersit**, "Sub-10 nm junctionless carbon nanotube field-effect transistors with improved performance," *AEU - International Journal of Electronics and Communications*, vol. 124, p. 153354, Sep. 2020. (Impact Factor: **3.18**).
- 17) **K. Tamersit**, "Improved performance of nanoscale junctionless carbon nanotube tunneling FETs using dual-material source gate design: A quantum simulation study," *AEU - International Journal of Electronics and Communications*, vol. 127, p. 153491, Dec. 2020. (Impact Factor: **3.18**).
- 18) M. K. Anvarifard, Z. Ramezani, I. S. Amiri, **K. Tamersit**, and A. M. Nejad, "Profound analysis on sensing performance of Nanogap SiGe source DM-TFET biosensor," *Journal of Materials Science: Materials in Electronics*, vol. 31, no. 24, pp. 22699–22712, Nov. 2020. (Impact Factor: **2.47**).
- 19) **K. Tamersit**, M. K. Q. Jooq, and M. H. Moaiyeri, "Computational Investigation of Negative Capacitance Coaxially Gated Carbon Nanotube Field-Effect Transistors," *IEEE Trans. Electron Devices*, vol. 68, no. 1, pp. 376–384, Jan. 2021. (Impact Factor: **2.91**).
- 20) **K. Tamersit**, "A novel band-to-band tunneling junctionless carbon nanotube field-effect transistor with lightly doped pocket: Proposal, assessment, and quantum transport analysis," *Physica E: Low-dimensional Systems and Nanostructures*, vol. 128, p. 114609, Apr. 2021. (Impact Factor: **3.38**).
- 21) M. K. Q. Jooq, M. H. Moaiyeri and **K. Tamersit**, "Ultra-Compact Ternary Logic Gates Based on Negative Capacitance Carbon Nanotube FETs," in *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 68, no. 6, pp. 2162–2166, Jun. 2021. (Impact Factor: **3.29**).
- 22) **K. Tamersit**, "Improved switching performance of nanoscale p-i-n carbon nanotube tunneling field-effect transistors using metal-ferroelectric-metal gating approach," *ECS Journal of Solid State Science and Technology*, vol. 10, no. 3, p. 031004, Mar. 2021. (Impact Factor: **2.07**).
- 23) **K. Tamersit**, "New nanoscale band-to-band tunneling junctionless GNRFETs: potential high-performance devices for the ultrascaled regime," *Journal of Computational Electronics*, vol. 20, no. 3, pp. 1147–1156, Apr. 2021. (Impact Factor: **1.80**).

- 24) **K. Tamersit**, Z. Ramezani, and I. S. Amiri, “Improved performance of sub-10-nm band-to-band tunneling n-i-n graphene nanoribbon field-effect transistors using underlap engineering: A quantum simulation study,” *Journal of Physics and Chemistry of Solids*, vol. 160, p. 110312, Jan. 2022. (Impact Factor: **3.99**)
- 25) **K. Tamersit**, M. K. Q. Jooq, and M. H. Moaiyeri, “Analog/RF performance assessment of ferroelectric junctionless carbon nanotube FETs: A quantum simulation study,” *Physica E: Low-dimensional Systems and Nanostructures*, vol. 134, p. 114915, Oct. 2021. (Impact Factor: **3.38**)
- 26) F. Behbahani, M. K. Q. Jooq, M. H. Moaiyeri, and **K. Tamersit**, “Leveraging Negative Capacitance CNTFETs for Image Processing: An Ultra-Efficient Ternary Image Edge Detection Hardware,” *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 68, no. 12, pp. 5108–5119, Dec. 2021. (Impact Factor: **3.60**)

- Published Book Chapter

Fayçal Djeflal, Abdelhamid Benhaya, **Khalil Tamersit**, et al.: *New Dielectric Modulated Graphene (DMG) FET-Based Sensor for High-performance Biomolecule Sensing Applications*. IAENG Transactions on Engineering Sciences, Special Issue for the International Association of Engineers Conferences 2014, World Scientific Publishing., ISBN: 978-981-4667-37-1, DOI: **10.1142/9789814667364_0030**.

- Published Papers in Referred International Conferences

- 1) **Khalil Tamersit**, “Role of Underlap Structure in Boosting the Performance of Band-to-Band Tunneling Carbon Nanotube FET with 5-nm Gate Length,” presented at the 2021 10th International Conference on Modern Circuits and Systems Technologies (MOCASST), Jul. 2021. doi: **10.1109/mocast52088.2021.9493375**.
- 2) **Khalil Tamersit**, “Junctionless Carbon Nanotube Field-Effect Transistors as Gas Nanosensors for Low- Power Environment Monitoring Applications,” presented at the 2021 10th International Conference on Modern Circuits and Systems Technologies (MOCASST), Jul. 2021. doi: **10.1109/mocast52088.2021.9493417**.
- 3) **Khalil Tamersit**, “Double-gate junctionless GNR-FETs operating in the BTBT regime: a simple design with improved performance for low-power applications,” presented at the 44th International Semiconductor Conference CAS 2021, October 6 – 8, 2021.
- 4) **Khalil Tamersit**, “Improving the on-current of junctionless carbon nanotube tunneling FETs using a heavily n-type doped pocket,” presented at the 44th International Semiconductor Conference CAS 2021, October 6 – 8, 2021.
- 5) **Khalil Tamersit**, Fayçal Djeflal: *Fast and Accurate Simulation of Ultrascaled Carbon Nanotube Field-Effect Transistor Using ANN Sub-Modeling Technique*. IEEE International Conference on Design & Test of Integrated Micro & Nano-Systems (DTS'2019), Apr. 28 – May 1 2019, Gammarth, Tunis, Tunisia. DOI: **10.1109/DTSS.2019.8915240**.
- 6) **Khalil Tamersit**, Fayçal Djeflal: *Atomistic Simulation of a New Label-Free DNA Nanosensor Based on Ballistic Carbon Nanotube Field-Effect Transistor*. IEEE International Conference on Design & Test of Integrated Micro & Nano-Systems (DTS'2019), Apr. 28 – May 1 2019, Gammarth, Tunis, Tunisia. DOI: **10.1109/DTSS.2019.8915042**.
- 7) **Khalil Tamersit**, Fayçal Djeflal: *Numerical Study of a New Junctionless Tunneling Field-Effect Transistor Based on Graphene Nanoribbon*. IEEE International Conference on Design & Test of Integrated Micro & Nano-Systems (DTS'2019), Apr. 28 – May 1 2019, Gammarth, Tunis, Tunisia. DOI: **10.1109/DTSS.2019.8915091**.

Participation in International Scientific Summer School (Selected Participant)

- Summer School: Nanotechnology meets Quantum Information (NanoQI) 2017, July 24 to 28, 2017, Palacio Miramar, Donostia-San Sebastian, Spain.

Honors and Awards

July 2014 His work on graphene-based biosensors has received the Certificate of Merit from the World Congress on Engineering, London, U.K., in 2014.

The concerned paper is:

http://www.iaeng.org/publication/WCE2014/WCE2014_pp248-252.pdf

September 2016 The paper identified by "DOI: 10.1109/JSEN.2016.2550492", was ranked in top 25 most popular papers during one semester, its ranking is archived in IEEE Sensors Journal and IEEE Sensors Council web sites. The paper proposed new Biomedical Devices using a quantum simulation approach based on Non- Equilibrium Green's Function (NEGF) formalism. A congratulatory letter was received from Pr. Mike McShane, the President of IEEE Sensors Council, USA.

December 2020 Appearance on the Golden List of Reviewers for 2020 published by the IEEE Transactions on Electron Devices. DOI: 10.1109/TED.2020.3035048.

August 2021 Dr. K. Tamersit has received a prestigious distinction from The Institute of Electrical and Electronics Engineers, USA. It is about an elevation to the IEEE Senior Member Grade for his accomplishments and research in nanoelectronics, medical electronics, and bioelectronics.

October 2021 Dr. Tamersit was a recipient of the Best Paper Award in 44th IEEE International Semiconductor Conference, October 6-8, 2021. The title of the concerned paper is: "Improving the On-Current of Junctionless Carbon Nanotube Tunneling FETs Using a Heavily n-Type Doped Pocket".

October 2021 Appearance on the list of Top-Scientists in the world for a single year impact, 2021. Source: "August 2021 data-update for 'Updated science-wide author databases of standardized citation indicators.'" **Elsevier BV**, Oct. 19, 2021, DOI: 10.17632/BTCHXKTZYW.3.

Algiers, December 28, 2021

Dr. Khalil Tamersit

