Curriculum Vitae
Laith Abdulhassan Alewy Algharagholy

- **E-mail:** l.algharagholy@gmail.com
- **Mobile Number:** +647814611164
- **Date of birth:** 09/08/1973
- **Current Job Position:** Research Professor
- **Current Organization:** University of Sumer/IRAQ

- **Education:**

1. PhD in Computational Physics/Physics Department/Lancaster University/UK/2013.
2. MSc in Astronomy/Astronomy Department /Baghdad University/Iraq/2002.
3. BSc in Physics/Physics Department /Baghdad University/Iraq/1999.

- **PhD Thesis Title:** *Quantum Transport through Nanoscale Sculpturenes.*
- **Languages Skills**

1- Arabic/Native Language

2- English/I have excellent ability in the four components of English language (Speaking, Writing, Reading and Listening).

- **Experience and Skills:**

My work has given me an experience in a wide range and variety of computational tools, such as:

1- Expert in Density Functional Theory, DFT.
2- Expert in Green's Function, GF.
3- Expert in Electron Transport Theory, ETT.
4- Expert in SIESTA/TRANSIESTA implementations of DFT.
5- Expert in GOLLUM code.
6- Fair experience in QUANTUM ESPRESSO and GAUSSIAN codes.

- **Conference Presentations and Posters:**

1- 1st International Scientific Conference on Pure Science (ISCPS2019), Al-Qadisiyah University, Iraq, 23-24 January 2019.

2- Sculpturenes: A New Family of sp2-Bonded Carbon-Based Structures (Presentation). Concepts, theory and modelling: Network meeting and workshop on Quantum Technology/ UIST / Scotland/19-24 May 2013.

3- Sculpturenes: A new form of sp2-bonded carbon (Presentation). International Symposium on Molecular Electronics /Lancaster University/ /UK/ 24-25 Jan 2013.

4- Decimation Method Technique (Poster). Physics by the Lake - Ambleside 11-23 July 2010.

- **Workshop and Training:**

1. Renewal Energy workshop, Kashan University, Iran, 22-25 September 2018.

2. Nanoelectronics beyond the roadmap, Annual network meeting and thematic workshop/Keszthely/Hungary/12-18 June 2011.

3. HPC-SC Autumn Academy/Seymour College/Cambridge University/5-16 September 2011.

4. International School & Symposium on Molecular Materials & Devices/ Durham University/ 23-29 September 2012.

5. Oviedo University/Physics Department/Spain/11-24 November 2012, working on a joint collaborative effort to develop a DNA sequencing device.

- **List of Patents:**

1- Method of Producing a Molecular Structure

2- Nanopore Arrangement for DNA Sequencing

Please see (https://patents.justia.com/inventor/laith-algharagholy)

- **Publications:**

1. Laith A. Algharagholy, V.M. García-Suárez, Ohood Abdullah Albeydanic, and Jehan Alqahtanid, *Towards nanotube-based sensors for discrimination of drug molecules*, Phys. Chem. Chem. Phys., 2023, 25, 26613–26622.
2. Laith A. Algharagholy, V.M. García-Suárez, and Sawsan S. Abaas, *Selective Sensing of DNA Nucleobases with Angular Discrimination*, ACS Omega 2024, 9, 3, 3240–3249.
3. Algharagholy, L.A. and V.M. García-Suárez, *Defect-Induced Transport Enhancement in Carbon–Boron Nitride–Carbon Heteronanotube Junctions.* The Journal of Physical Chemistry Letters, 2023. **14**(8): p. 2056-2064.
4. Algharagholy, L.A., et al., *Nanotube-based sensors for discrimination of drug molecules.* Physical Chemistry Chemical Physics, 2023.
5. Algharagholy, L.A., et al., *Discriminating sensing of explosive molecules using graphene–boron nitride–graphene heteronanosheets.* RSC Advances, 2022. **12**(54): p. 35151-35157.
6. Algharagholy, L.A., H. Sadeghi, and A.A. Al-Backri, *Selective sensing of 2, 4, 6-trinitrotoluene and triacetone triperoxide using carbon/boron nitride heteronanotubes.* Materials Today Communications, 2021. **28**: p. 102739.

7. Algharagholy, L.A., *Defects in carbon nanotubes and their impact on the electronic transport properties.* Journal of Electronic Materials, 2019. **48**(4): p. 2301-2306.
8. Algharagholy, L., T. Pope, and C. Lambert, *Strain-induced bi-thermoelectricity in tapered carbon nanotubes.* Journal of Physics: Condensed Matter, 2018. **30**(10): p. 105304.
9. Al-Galiby, Q.H., et al., *Tuning the thermoelectric properties of metallo-porphyrins.* Nanoscale, 2016. **8**(4): p. 2428-2433.
10. Algharagholy, L.A., *Theoretical Study Toward Understanding the Electronic Properties of Armchair Hetero Nanotubes.* Journal of Thi-Qar University Vol, 2016. **11**(2).
11. Algharagholy, L.A., H.M. Abduljalil, and H.A. Marhoon, Study of Electronic Structure of Boron-Nitride/Graphene Bilayer by Using DFT. Al-Qadisiyah Journal of Pure Science, 2017. 22(1): p. 227-234.
12. Algharagholy, L.A., et al., *Tuning thermoelectric properties of graphene/boron nitride heterostructures.* Nanotechnology, 2015. **26**(47): p. 475401.
13. Algharagholy, L., et al., *Sensing single molecules with carbon–boron-nitride nanotubes.* Journal of Materials Chemistry C, 2015. **3**(39): p. 10273-10276.
14. Ferrer, J., et al., *GOLLUM: a next-generation simulation tool for electron, thermal and spin transport.* New Journal of Physics, 2014. **16**(9): p. 093029.
15. Sadeghi, H., et al., *Graphene sculpturene nanopores for DNA nucleobase sensing.* The Journal of Physical Chemistry B, 2014. **118**(24): p. 6908-6914.
16. Algharagholy, L., et al., *Electronic properties of sculpturenes.* New Journal of Physics, 2014. **16**(1): p. 013060.
17. Algharagholy, L., et al., *Sculpting molecular structures from bilayer graphene and other materials.* Physical Review B, 2012. **86**(7): p. 075427.

- I was awarded an Honorary Visiting Academic from 2014 to 2016 and Visiting researcher from 2016-2019 at Physics Department/Lancaster University/UK.
- Co-author of GOLLUM paper (GOLLUM: a next generation quantum transport simulation tool) and member of its team.
- In 20/6/2019, I have invited by Prof. Colin Lambert to visit Lancaster University/UK to undertake a collaborative research activity on the transport properties of several graphene-based nano-scale devices.

- **Google Scholar**

https://scholar.google.co.uk/citations?user=76BEAU8AAAAJ&hl=en

- **Web of Science**

https://www.webofscience.com/wos/author/record/418943