Curriculum vitae

Personal Information

First Name: Mohammed [redacted]

Last Name: Salah Mohammed Moaied
Sex: Male [redacted]

Contact Information

Address: [redacted]

Education and Qualifications

February, 2014	**Ph.D. in Condensed Matter Physics and Nanotechnology, Universidad Autónoma de Madrid, Spain.**
2009–2010	MSc in Condensed Matter Physics and Nanotechnology, Universidad Autónoma de Madrid, Spain.
2006–2007	Pre-MSc in Solid State Physics, Zagazig University, Egypt.
1999–2004	BSc in Physics Science, Zagazig University, Egypt.

Research Interests

Computational Modeling and Simulation of the structural, dynamical, transport, magnetic and optical properties of materials by means of atomistic computer simulations and/or first principles calculations. Proficient in programming with Fortran 77/90, with experience on parallel programming within MPI, OpenMP as well as other programming languages (C/C++, Matlab, etc.). Familiar with using the SIESTA code (Spanish Initiative for Electronic Simulations with Thousands of Atoms) and various atomic scale simulation techniques (Molecular dynamics, and Monte Carlo models).

Professional

31 May, 2018–To present	Lecturer at Physics Department, Faculty of Science, Zagazig University, Egypt.
1 June, 2017–31 May, 2018	**Postdoctoral Researcher at Physics Department, Pukyong National University, Busan, Korea.**
1 May, 2016–31 October, 2017	Lecturer at Physics Department, Faculty of Science, Zagazig University, Egypt.
1 November, 2015–30 April, 2016	Postdoctoral Researcher at Condensed Matter Physics and Nanotechnology Department, Universidad Autónoma de Madrid, Spain.
2014–31 October, 2015	Lecturer at Physics Department, Faculty of Science, Zagazig University, Egypt.
2008–2013	Researcher at Condensed Matter Physics and Nanotechnology Department, Universidad Autónoma de Madrid, Spain.
2004–2008	Researcher at Solid State Physics Department, Zagazig University, Egypt.
2004–2008	Instructor at Physics Department, Faculty of Science, Zagazig University, Egypt.

Teaching Experience

2014–2017	I have 3 years of university teaching experience. I have given lectures on different subjects related to physics, calculus, and computing.
2004–2008	I have more than 3 years of university teaching experience. I have given laboratory demonstrations, problem solving sessions and lectures on different subjects related to physics, calculus, and computing.

Projects and Thesis

PhD Thesis

Title	Computational Studies of Novel Phenomena on the Surface of Graphite
Supervisors	Dr. Juan-José Palacios
Description	• We calculate the electronic structure and magnetic properties of hydrogenated graphite surfaces using van der Waals density functional theory and model Hamiltonians. • Through density functional theory calculations, we obtain the desorption energy barriers and the diffusion energy landscape for a single hydrogen atom on a graphene bilayer. Then, we perform kinetic Monte Carlo simulations to study the evolution of a random distribution of H atoms on the surface. • Modeling the electrostatic exfoliation of graphene from graphite layers

Master Thesis

Title	First Principles Study of the Structure, Stability, and Adsorption of Methane Clathrate Hydrates.
Supervisors	Dr. José María Soler
Description	Using ab initio methods based on the density functional theory (DFT), which has been developed and designed for calculations in large systems and implemented in the SIESTA code we study the host-guest interaction on structural properties and stability of methane clathrate hydrates.

Pre-Master Thesis

Title	Lead-Free Solder Alloys
Supervisors	Dr. Abdul Rahman Al-Dali
Description	We have investigated the mechanical and thermal properties of lead free solder alloys (Sn-Zn-Ag solders).

Bachelor Project

Title	luminescent solar collector
Supervisors	Dr. Asmaa Fahim
Description	We have studied the design of luminescent solar collector (LSC), and made a few primary changes to the traditional design to make it more efficient and even less expensive.

Conferences and Workshops

Conference Talks

Name	1st Workshop on Fabrication and Properties of Nanostructures.
Date	8-9 November, 2012.
Place	Universidad de Alicante, Alicante, Spain.

Name	Korea Physical Society (KPS) 2017 - Autumn Meeting.
Date	25-27 October, 2017.
Place	Korea Institute of Physics and Technology (KAIST).

Name	Korea Physical Society (KPS) 2018 - Spring Meeting.
Date	25-27 April, 2018.
Place	Daejeon Convention Center(DCC).

Conference Posters

Name	First-Principles Computational Methodologies for 2D Materials.
Date	14-16 September, 2011.
Place	Lancaster University, United Kingdom.

Conference Participants

Name	Graphene for Future Emerging Technologies
Date	18 October, 2011.
Place	CSIC auditorium, Madrid, Spain.
Name	Nanotechnology Workshop
Date	2-3 September, 2007.
Place	Bibliotheca Alexandrina , Alexandria, Egypt.
Name	Nanostructure: Science and Technology
Date	2 May, 2006.
Place	Tanta University , Tanta, Egypt.
Name	Physics in 100 years
Date	5 July, 2005.
Place	Zagazig University, Egypt.
Name	Security and safety in the use of laboratory tools
Date	1-3 March, 2005.
Place	Zagazig University, Egypt.

Grants

1 June, 2017–31 May, 2018	Postdoctoral Researcher at Physics Department, Pukyong National University, Busan, Korea.
1 November, 2015–30 April, 2016	Fellowship in Condensed Matter Physics and Nanotechnology, Universidad Autónoma de Madrid, Spain. was funded by grants from the Egyptian Ministry of High Education, Egypt.
2008–2014	Scholarship in Condensed Matter Physics and Nanotechnology, Universidad Autónoma de Madrid, Spain. was funded by grants from the Spanish Ministry of Science and Innovation (MICINN) and the Ministry of Education through grant F1S2009-12721, Spain.
1 March–31 August, 2012	Fellowship in Institut de Chimie, Physique et Matériaux, Laboratoire de Physique des Milieux Denses, Metz, France. was funded by grants from the Spanish Ministry of Science and Innovation (MICINN) and the Ministry of Education through grant F1S2009-12721, Spain.

Computer Experience

Computer Programming	FORTRAN77, FORTRAN90, C, C++, Matlab, UNIX shell scripting (including POSIX.2), AppleScript, and others.
Desktop Editing and Productivity Software	Vim, Emacs, Eclipse TEX (LATEX, BIBTEX, PSTricks), Microsoft Office, OpenOffice.org, LibreOffice, Corel WordPerfect, Google Docs GIMP, InkScape.
Operating Systems	Microsoft Windows family, Apple Mac OS X, IBM OS/2, Linux, and other UNIX variants.
Plotting tool	Gnuplot, OriginLab, Xmgrace, QtiPlot.
Vizualization tools	XCrySDen, ChemDraw, RasMol, VESTA, DS ViewerPro.
DFT codes	SIESTA, VASP.

Areas of Expertise

Physics Sciences

Condensed-Matter Physics, Quantum Physics, Computational Physics, Solid-State Physics, Atomic and Molecular Physics, Optical Physics, Statistical Physics, Biophysics, Nuclear Physics.

Mathematics

Applied Mathematics, Real and Complex Analysis Methods, Measure Theory, Differential Geometry.

Electronics

Analog and Digital Electronics.

Chemistry

Physical Chemistry, Analytical Chemistry.

Languages

Arabic	Mother tongue
English	**Fluent**
Spanish	Good (Live in Spain from 2008 to 2013)
French	Fair

Training

Name	Thinking skills.
Date	May 29-31, 2007.
Place	Development project of faculty members and leaders, Zagazig University, Egypt.
Name	Lifelong learning.
Date	February 13-15, 2007.
Place	Development project of faculty members and leaders, Zagazig University, Egypt.
Name	Time management and work pressures.
Date	February 10-12, 2007.
Place	Development project of faculty members and leaders, Zagazig University, Egypt.
Name	Scientific research skills.
Date	September 29 - October 3, 2005.
Place	Development project of faculty members and leaders, Zagazig University, Egypt.
Name	Professional ethics.
Place	Development project of faculty members and leaders, Zagazig University, Egypt.
Name	Effective communication skills.
Place	Development project of faculty members and leaders, Zagazig University, Egypt.

Publications

2010

Guillermo Román-Pérez, Mohammed Moaied, Jose M. Soler, and Felix Yndurain. Stability, adsorption, and diffusion of CH_4, CO_2, and H_2 in clathrate hydrates. *Phys. Rev. Lett.*, 105:145901, Sep 2010. doi: 10.1103/PhysRevLett.105.145901. URL http://link.aps.org/doi/10.1103/PhysRevLett.105.145901

2014

Mohammed Moaied, J. V. Alvarez, and J. J. Palacios. Hydrogenation-induced ferromagnetism on graphite surfaces. *Phys. Rev. B*, 90:115441, Sep 2014. doi: 10.1103/PhysRevB.90.115441. URL http://link.aps.org/doi/10.1103/PhysRevB.90.115441

2015

Mohammed Moaied, J. A. Moreno, M. J. Caturla, Félix Ynduráin, and J. J. Palacios. Theoretical study of the dynamics of atomic hydrogen adsorbed on graphene multilayers. *Phys. Rev. B*, 91:155419, Apr 2015. doi: 10.1103/PhysRevB.91.155419. URL http://link.aps.org/doi/10.1103/PhysRevB.91.155419

2016

Héctor González-Herrero, José M. Gómez-Rodríguez, Pierre Mallet, Mohamed Moaied, Juan José Palacios, Carlos Salgado, Miguel M. Ugeda, Jean-Yves Veuillen, Félix Yndurain, and Iván Brihuega. Atomic-scale control of graphene magnetism by using hydrogen atoms. *Science*, 352(6284):437–441, 2016. ISSN 0036-8075. doi: 10.1126/science.aad8038. URL http://science.sciencemag.org/content/352/6284/437

2017

C. Rubio-Verdu, G. Saenz-Arce, J. Martinez-Asencio, D. C. Milan, M. Moaied, J. J. Palacios, M. J. Caturla, and C. Untiedt. Graphene flakes obtained by local electro-exfoliation of graphite with a stm tip. *Phys. Chem. Chem. Phys.*, 19:8061–8068, 2017. doi: 10.1039/C6CP07236D. URL http://dx.doi.org/10.1039/C6CP07236D

2017

M. Umar Farooq, Imran Khan, Mohammed Moaied, and Jisang Hong. Hydrogen functionalization induced two-dimensional ferromagnetic semiconductor in mn di-halide systems. *Phys. Chem. Chem. Phys.*, 19:29516–29524, 2017. doi: 10.1039/C7CP05732F. URL http://dx.doi.org/10.1039/C7CP05732F

2018

Mohammed Moaied and Jisang Hong. Tuning the magnetic properties of hydrogenated bilayer graphene and graphene/h-bn heterostructures by compressive pressures. *Carbon*, 131:266 – 274, 2018. ISSN 0008-6223. doi: https://doi.org/10.1016/j.carbon.2018.01.102. URL http://www.sciencedirect.com/science/article/pii/S0008622318301118

2018

Mohammed Moaied, Young Soo Lim, and Jisang Hong. Hydrogenated black phosphorus single layer. *Physica E: Low-dimensional Systems and Nanostructures*, 104:333 – 339, 2018a. ISSN 1386-9477. doi: https://doi.org/10.1016/j.physe.2018.07.013. URL http://www.sciencedirect.com/science/article/pii/S1386947718302984

2018

Mohammed Moaied, Jiyoul Lee, and Jisang Hong. A 2d ferromagnetic semiconductor in monolayer cr-trihalide and its janus structures. *Phys. Chem. Chem. Phys.*, 20:21755–21763, 2018b. doi: 10.1039/C8CP03489C. URL http://dx.doi.org/10.1039/C8CP03489C

2019

Mohammed Moaied and Jisang Hong. Size-dependent critical temperature and anomalous optical dispersion in ferromagnetic cri3 nanotubes. *Nanomaterials*, 9(2), 2019. ISSN 2079-4991. doi: 10.3390/nano9020153. URL http://www.mdpi.com/2079-4991/9/2/153

Papers in Preparation

2019 | Mohammed Moaied, and Hong, Jisang. "Enhanced critical temperature and anomalous optical dispersion in ferromagnetic CrI3 nanotubes". - In preparation. To be submitted to Nanoscale.

References Available to Contact

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More Information

More information and auxiliary documents can be available upon request.

Last Updated: August 27, 2018