

# Abubakar Gambo Mohammed

Block BN-02-41,  
Institute of Sustainable Energy,  
Universiti Tenaga Nasional,  
Kajang 43000, Selangor, Malaysia  
Phone: +601137938060  
[abubakar@uniten.edu.my](mailto:abubakar@uniten.edu.my)

[ResearcherID](#)  
[Scopus Profile](#)  
[Google Scholar](#)  
[ResearchGate](#)  
Phone: +60104678815  
[agmaislati@gmail.com](mailto:agmaislati@gmail.com)

## EDUCATION

**Xi'an Jiaotong University, China**

September 2018 - September 2022

**Ph.D.** Engineering Thermophysics

*Thesis: Numerical investigation of heat dissipation and thermal performance of large-format lithium-ion battery module for electric vehicles*

**Erciyes University, Turkey**

February 2015 - July 2017

**Researcher**

*Thermal energy retention and electrical resistance heating for deicing and snow melting applications*

**Erciyes University, Turkey**

September 2012 - July 2014

**M.Sc.** Material Science and Mechanical Engineering

*Thesis: Experimental and numerical approach to study the mechanical behaviour of the filament wound composite leaf spring*

**Bayero University Kano, Nigeria**

September 2005 – June 2010

**B.Sc.** Physics

## PROFESSIONAL EXPERIENCE

**Postdoctoral Research Fellow**

February 2023 – Present

Universiti Tenaga Nasional SDN. BHD., Malaysia

**Graduate Teaching Assistant, Erciyes University (Meliksah), Turkey**

Spring 2016

*Course:* Thermodynamics

*Responsibilities:* Holding discussion sessions and problem solving. Developed assignments and exam questions.

**Graduate Teaching Assistant, Erciyes University (Meliksah), Turkey**

Fall 2015 - 2016

*Course:* Finite Element Analysis

*Responsibilities:* Developed and delivered two-hour lectures weekly for two semesters in the practical session of the course. Developed class works and assignments questions. Integrated Problem-Based Learning activities, including assessments.

**Graduate Teaching Assistant, Erciyes University (Meliksah), Turkey** Fall 2015 - 2016

*Course:* Engineering Mechanics

*Responsibilities:* Facilitate discussion and problem-solving session, one hour weekly for two semesters. Developed assignments and exams questions, including assessments.

**Graduate Teaching Assistant, Erciyes University (Meliksah), Turkey** Spring 2015

*Course:* Mechanics of Composite Materials

*Responsibilities:* Facilitate discussion section, developed assignments and assessments, 13 Master's degree students included.

**Physics Teacher, Assahaba College, Kano, Nigeria** Aug. 2009 – Oct. 2010

**Physics Teacher, Community Secondary School Omuanwa** Oct. 2010 – Nov. 2011  
Ikwerre Local government, Rivers State, Nigeria

**Physics Teacher, Nasara Academy, Kano, Nigeria** Nov. 2011 – Oct. 2012

**Graduate Student** Fall 2018

Xi'an Jiaotong University

**Graduate Student** 2012 - 2016

Meliksah/Erciyes University, Kayseri

**Graduate Teaching Assistant** Fall 2014 – 2016

Meliksah/Erciyes University, Kayseri

## MENTORING & CO SUPERVISE

Mentored 4 Master's students on projects:

- Composite sport bicycle parts manufacturing using filament winding
- Heating blanket using woven fabric carbon fiber
- Composite snowboard manufacturing using glass/carbon fibers
- Filament wound leaf spring to replace conventional mattress spring

## RESEARCH EXPERIENCE

**Graduate Student, Xi'an Jiaotong University** 2018 - 2022

Key laboratory of Thermo-Fluid Science

Advisor: Prof. Qiuwang Wang

Heat transfer and thermal performance of large-format lithium-ion battery using PCMBased hybrid system for electric vehicles, under financial support from, the Foundation for

Innovative Research Groups of the National Natural Science Foundation of China (No.51721004), National Natural Science Foundation of China (No. 51536007), and the 111 Project (B16038).

**Research Assistant, Meliksah University, Turkey**

2014 - 2016

Department of Mechanical Engineering

Advisor: Dr. Ercan Sevkat

Co-advisors: Dr. Gokhan Ozgur, Dr. M. H. Kelestemur

Snow and ice removal from street and pavement using a newly developed method, under research grant No. 0272.STZ.2013-2.

## HONOURS & AWARDS

- ❖ Chinese Government Scholarship, Graduate Fellowship (PhD), 2017.
- ❖ Ph.D. Scholarship Award for Academic Excellence by Meliksah University, 2014.
- ❖ MELIKSEM English Language Mentor Certificate, Meliksah Continuing Education Centre (MELIKSEM IELTS Training and Testing Centre) Kayseri-Turkey, 2013 Summer IELT Camps.
- ❖ Kano State Government Overseas Scholarship Award to study MSc program in Turkey, 2012.
- ❖ Undergraduate Scholarship Award by Kano State Scholarship Board, Kano, Nigeria.
- ❖ Legends of Physics Award, as Best Theoretical Specialist Student of the class 2009/2010, Bayero University Kano, Nigeria.

## PUBLICATIONS

### Published in peer-reviewed journals

1. **Abubakar Gambo Mohammed**, H. Hasini, K.E. Elfeky, M.H. Ali, Q. Wang, “Effective cooling solutions for fast charge/discharge of Li-ion battery system using metallic phase change material”, *Results in Engineering* In Press 105461. **Q1, IF=6.0**
2. K.E. Elfeky, W.G Alshaer, **A.G. Mohammed**, Z. Xin, K. Ge, Q. Wang, “Multi-objective optimization of melting temperature and latent heat of PCM for cascaded layer tank used in CSP plants”, *Thermal Science and Engineering Progress* 62 (2025) 103662. **Q1, IF=5.1**
3. **Abubakar Gambo Mohammed**, N. Mansyur, H. Hasini, K.E. Elfeky, Q. Wang, M.A. Hajara, N.I. Om, “Review on the ammonia-blend as an alternative fuel for micro gas turbine power generation,” *International Journal of Hydrogen Energy* 82 (2024) 428-447. **Q1, IF = 8.1**
4. **Abubakar Gambo Mohammed**, H. Hasini, Karem E. Elfeky, Qiuwang Wang, M.A. Hajara, N.I. Om, “Cooling effectiveness enhancement of parallel air-cooled battery system through integration with multi-phase change materials,” *International Journal of Thermal Sciences* 201 (2024) 109030. **Q1, IF = 4.5**

5. Karem E. Elfeky, M. Hosny, S. A. Khatwa, **Abubakar Gambo Mohammed**, Qiuwang Wang, "CSP plants cooling technology: Techno-economic analysis, parametric study, and stacking ensemble learning forecasting," *Thermal Science and Engineering Progress* inpress (2024) doi: <https://doi.org/10.1016/j.tsep.2024.102777>. **Q1, IF = 5.1**
6. Karem Esayed Elfeky, Mohamed Hosny, **Abubakar Gambo Mohammed**, Wenxiao Chu, Shaaban Abu Khatwa, Qiuwang Wang, "Performance optimization of the parabolic trough power plant using dual-stage ensemble algorithm." *Applied Thermal Engineering* 249 (2024) 123419. **Q1, IF = 6.4**
7. **Abubakar Gambo Mohammed**, Karem E. Elfeky, Qiuwang Wang, "Rapid cooling effectiveness of Li-ion battery module with multiple phase change materials for plug-in hybrid electric vehicles." *International Journal of Thermal Sciences* 185 (2023) 108040. **Q1, IF = 4.5**
8. Karem E. Elfeky, **A.G. Mohammed**, N. Ahmed, Qiuwang Wang, "Thermal performance of cascaded and combined sensible-latent heat storage tank under fluctuations in sunlight and electric demand" *Applied Thermal Engineering* 229 (2023) 120575. **Q1, IF = 6.4**
9. Karem E. Elfeky, **A.G. Mohammed**, N. Ahmed, Qiuwang Wang, "Thermo-mechanical investigation of the multi-layer thermocline tank for parabolic trough power plants" *Energy* 268 (2023) 126749. **Q1, IF=9.0**
10. **Abubakar Gambo Mohammed**, Karem E. Elfeky, Qiuwang Wang, "Recent advancement and enhanced battery performance using phase change materials based hybrid battery thermal management for electric vehicles." *Renewable and Sustainable Energy Reviews* 154 (2022) 111759. **Q1, IF = 15.9**
11. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Thermo-economic evaluation of PCM layer thickness change on the performance of the hybrid heat storage tank for concentrating solar power plants." *Energy* 253 (2022) 124128. **Q1, IF = 9.0**
12. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Influence of inlet temperature on the performance of cascade and hybrid storage tank for CSP plants," *Applied Thermal Engineering* 206 (2022) 118098. **Q1, IF = 6.4**
13. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Performance prediction and optimization of a three-layer thermocline tank using the response surface method," *Computers & Chemical Engineering* 165 (2022) 107930. **Q2, IF = 4.3**
14. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Influence of inlet temperature on the performance of cascaded and hybrid storage tank for CSP plants," *Applied Thermal Engineering* 206 (2022) 118098. **Q1, IF = 6.4**
15. **Abubakar Gambo Mohammed**, Karem E. Elfeky, Qiuwang Wang, "Thermal management evaluation of Li-ion battery employing multiple phase change materials integrated thin heat sinks for hybrid electric vehicles." *Journal of Power Sources* 516 (2021) 230680. **Q1, IF = 9.2**
16. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Cycle cut-off criterion effect on the performance of cascaded, sensible, combined sensible-latent heat storage tank for concentrating solar power plants." *Energy* 230 (2021) 120771. **Q1, IF = 9.0**

17. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Performance analysis of an air rock thermocline TES tank for concentrated solar power plants using the coupled DEM-CFD approach." *Clean Technologies and Environmental Policy* (2021) doi.org/10.1007/s10098-021-02030-1. **Q2, IF = 4.3**
18. **Abubakar Gambo Mohammed**, Karem E. Elfeky, Qiuwang Wang, "Heat transfer and thermal Performance of Large-Format Li-ion Battery Modules Employing PCM with Airgap/Aluminum under Extreme Conditions." *Chemical Engineering Transactions* 81 (2020) 391-396.
19. K.E. Elfeky, **A.G. Mohammed**, N. Ahmed, Lin Lu, Qiuwang Wang, "Thermal and economic evaluation of phase change material volume fraction for thermocline tank used in concentrating solar power plants." *Applied Energy* 267 (2020) 115054. **Q1, IF = 11.2**
20. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Numerical Investigation of Cycle Cut-off Criterion on System Performance of Thermocline Tank." *Chemical Engineering Transactions* 81 (2020) 499-504.
21. Karem E. Elfeky, **Abubakar Gambo Mohammed**, Qiuwang Wang, "Investigate the Thermal Performance of Thermocline Tank for Hybrid Solar Tower Plants." *Chemical Engineering Transactions* 81 (2020) 523-528.
22. **Abubakar Gambo Mohammed**, Ercan Sevkati, Auwal Muhammad, "A mechanical behavior study of Filament wound composite leaf Springs." *Songklanakarin Journal of Science and Technology* 42 (4) 2020.
23. **Abubakar Gambo Mohammed**, Gokhan Ozgur, Ercan Sevkati, "Electrical resistance heating for deicing and snow melting applications: Experimental Study." *Cold Region Science and Technology* 160 (2019) 128-138. **Q1, IF = 4.427**
24. Munzali Musa, **Abubakar Gambo** and Auwal Muhammad, "Wear Properties of Boron added high Strength Low Alloy (HSLA) SAE 8620 Steel." *Journal of Metals, Materials and Minerals*, 28 (2018) 22-29.
25. M.B. Garba, A. Muhammad, M. Musa, **A.G. Mohammed**, "Assessing the performance of global solar radiation empirical equations in Sokoto, Nigeria using meteorological parameters," *Nigerian Journal of Technology* 37 (2) 2018, 358-364.

#### Submitted Manuscripts

24. **Abubakar Gambo Mohammed**, H. Hasini, K.E. Elfeky, M.H. Ali, Q. Wang, "Enhance thermal regulation of Li-ion batteries for rapid charge-discharge application using gallium PCM", *Journal of Energy Storage* (Under review).
25. **Abubakar Gambo Mohammed**, H. Hasini, K.E. Elfeky, M.H. Ali, Q. Wang, "Toward high-performance Li-ion batteries for EVs: A review of fast charging barriers and emerging BTMS solutions", *Renewable and Sustainable Energy Reviews* (Under review).
26. **A.G. Mohammed**, M.N.M. Ja'afar, H. Hasini, K.E. Elfeky, Q. Wang, T.A.H. Alghamdi, "Three mixture fraction approach for in-furnace solid fuel blend in tangential fired-coal power plant," *Engineering Application of Computational Fluid Mechanics* (under review).

27. K.E. Elfeky, M. Hosny, **A.G. Mohammed**, Q. Wang, K. Ge, “Comparison of new hybrid versus water cooling systems for electric vehicle battery: A machine learning approach”, *Energy* (Under review).
28. K.E. Elfeky, M. Hosny, **A.G. Mohammed**, S. Abu Khatwa, Qiuwang Wang, “Efficient spatial modeling of the parabolic trough power plant using a dual-stage ensemble algorithm,” *Applied Thermal Engineering* (under review).

## CONFERENCE PAPER PRESENTATIONS

1. **Abubakar Gambo Mohammed**, Karem E. Elfeky, Qiuwang Wang, “Cooling effectiveness of Li-ion battery module with multiple phase change materials for hybrid vehicles”. The 16<sup>th</sup> SDEWES Conference on Sustainable Development of Energy, Water and Environment System, Oct 10-15, 2021, in Dubrovnik, Croatia.
2. K.E. Elfeky, **A.G. Mohammed**, Qiuwang Wang, “Thermo-economic analysis of changing the PCM layer thickness for CSP plants’ combined sensible-latent heat storage tank”. The 16<sup>th</sup> SDEWES Conference on Sustainable Development of Energy, Water and Environment System, Oct 10-15, 2021, in Dubrovnik, Croatia.
3. **Abubakar Gambo Mohammed**, Karem E. Elfeky, Qiuwang Wang, “Heat transfer and thermal Performance of Large-Format Li-ion Battery Modules Employing PCM with Airgap/Aluminum under Extreme Conditions” *The 23<sup>rd</sup> Conference on Process Integration, Modelling, and Optimisation for Energy Saving and Pollution Reduction*, August 17-21, 2020, Xi’an, China.
4. K.E. Elfeky, **A.G. Mohammed**, N Ahmad, Zhoutuo Tan, Ting Ma, Qiuwang Wang, “Influence of the PCM volume fraction on the thermal performance of thermocline thermal energy storage tank used in CSP plants” *International Conference on Applied Energy*, August 12-15, 2019, Västerås, Sweden.
5. **Abubakar Gambo**, Gokhan Ozgur, Ercan Sevkat, “A novel underground heating system for deicing applications” *3rd International Balkans Conference on Challenges of Civil Engineering, 3-BCCCE, 19-21 May 2016, Epoka University, Tirana, Albania*.
6. **M. Abubakar Gambo**, Ercan Sevkat, “Experimental approach to study the mechanical behaviour of the filament wound composite leaf spring” *10<sup>th</sup> International fracture Conference, 24-26 April 2014, Meliksah University, Kayseri, Turkey*.

## PROFESSIONAL SERVICES

Reviewer for Peer-Reviewed Journals:

- Sustainable Cities and Societies (IF = 11.7)
- Chemical Engineering Journal (IF = 15.1)
- Energy (IF = 9.0)
- Energy Report (IF = 5.2)
- Scientific Report (IF=3.2)

## REFEREES

Available on request