



# Hussein Togun Abdullah Sajat

حسين طوكان عبدالله ساجت

Professor

## PROFILE

Dr.Eng. Hussein Togun received his BSc. and MSc. Degree in Nuclear Engineering from University of Baghdad, Baghdad, Iraq. Also, he received his Ph.D. degree from University of Malaya, Malaysia. He was ahead department of biomedical engineering from (2015-2019). Also he is a member in editorial board in many international scientific journals and conferences. His research interests include Heat Transfer, Energy, Fluid Mechanics, Nanofluids, Hybrid nanofluids, CFD Simulation.

## ACADEMIC TITLES

2023-10-15 Professor

## ADMINISTRATIVE POSITIONS

2015-06-21 - 2019-07-17 Head of biomedical engineering department

## PUBLICATIONS ( 2 7 7 )

- Phase change materials in thermal management of Li-ion batteries: A state-of-the-art review**  
*Journal of Energy Storage* 145, 119782, 2026 | 2026 | Cited: 17
- Toward high-efficiency solid oxide fuel cells: A comprehensive review of hybrid integration techniques**  
*Renewable and Sustainable Energy Reviews* 229, 116636, 2026 | 2026 | Cited: 3
- Corrigendum to "Advancements in combustion technologies: A review of innovations, methodologies, and practical applications". [Energy Convers. Manag. X 26 (2025) 100964]**  
*Energy Conversion and Management: X* 29, 101517, 2026 | 2026
- Smart Buildings Envelope Utilize Triple PCM for Offset and Reduce Peak Load Using Deep Clustering of Multi-agent Control**  
*Energy*, 140039, 2026 | 2026 | Cited: 1
- Fuel cell electric vehicles: Innovations, challenges, and the path to sustainable mobility**  
*International Communications in Heat and Mass Transfer* 172, 110520, 2026 | 2026 | Cited: 1
- Recent Progress in Fin Configuration Optimization for Phase Change Material Melting**  
*Advanced Engineering Forum* 58, 91-108, 2026 | 2026
- Advancing renewable and sustainable energy: A regional approach**  
*Energy & Environment*, 0958305X261428669, 2026 | 2026
- Performance evaluation of a vapor-compression refrigeration system with r600a refrigerant and alumina and titanium dioxide hybrid nano-lubricants**  
*Journal of Thermal Analysis and Calorimetry* 151 (1), 583-591, 2026 | 2026
- Comprehensive environmental and economic analysis of active-mode greenhouse solar dryers for green peas processing**  
*Environmental Progress & Sustainable Energy*, e70400, 2026 | 2026
- Revolutionizing sustainable energy: A bibliometric analysis and review of AI applications in nano-enhanced thermal storage**  
*Journal of Energy Storage* 161, 121740, 2026 | 2026

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## RESEARCH METRICS

h-index (Scopus)	41
h-index (GS)	45
Citations (Scopus)	5600
Citations (GS)	6947
Documents (Scopus)	177
Documents (GS)	213



11. **Heat transfer enhancement in thermal energy storage using novel fin designs: A numerical study**  
*Journal of Energy Storage* 163, 122054, 2026 | 2026
12. **Exploring the catalytic potential of peels of potato, lemon, and citrus limetta as biocatalysts for biodiesel production and the effects of biodiesel with hydrogen blending with hydrogen blending and...**  
*Biomass Conversion and Biorefinery* 16 (4), 148, 2026 | 2026
13. **Effect of magnetic nanoparticles in solar energy applications**  
*Industrial Applications of Functionalized Magnetic Nanoparticles*, 409-421, 2026 | 2026
14. **Multiwall carbon nanotubes as efficient photothermal coating: machine learning optimization**  
*Journal of Thermal Analysis and Calorimetry*, 1-17, 2026 | 2026
15. **Reimagining solar desalination: a critical review of innovations in spherical solar still design and performance**  
*Heat Transfer* 55 (3), 1377-1398, 2026 | 2026 | Cited: 1
16. **Enhancing energy efficiency of industrial boiler application by the integration of ground-source heat pumps and photovoltaic-thermal solar water collectors**  
*Case Studies in Thermal Engineering* 73, 106550, 2025 | 2025 | Cited: 2
17. **Intensification of double-tube heat exchangers performance by modified twisted tapes: review perforated and dimpled/baffled twisted tape techniques: SA Kadhim et al.**  
*Journal of Thermal Analysis and Calorimetry* 150 (21), 17157-17184, 2025 | 2025 | Cited: 2
18. **Innovative approaches to waste heat recovery: reclaiming heat for sustainable industrial efficiency**  
*Journal of Thermal Analysis and Calorimetry* 150 (21), 17101-17131, 2025 | 2025 | Cited: 5
19. **Performance evaluation of a vapor-compression refrigeration system with r600a refrigerant and alumina and titanium dioxide hybrid nano-lubricants**  
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20. **Review of the trends, evolution, and future research directions of green hydrogen production from wastewaters—Systematic and bibliometric approach**  
*Energy Conversion and Management: X* 25, 100822, 2025 | 2025 | Cited: 24
21. **Artificial intelligence in renewable energy: comprehensive insights into challenges, opportunities, and future trends**  
*Journal of Thermal Analysis and Calorimetry*, 1-31, 2025 | 2025 | Cited: 3
22. **Reimagining Solar Desalination: A Critical Review of Innovations in Spherical Solar Still Design and Performance**  
*Heat Transfer*, 2025 | 2025 | Cited: 1
23. **Performance enhancement of a single slope solar still using wick materials: a comparative experimental investigation with energy, exergy, and economic analysis**  
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24. **Influence of the typical twisted tape inserts into the inner tube of double-pipe heat exchanger: a limited review**  
*Results in Engineering* 25, 104386, 2025 | 2025 | Cited: 21
25. **Advancements in combustion technologies: A review of innovations, methodologies, and practical applications**  
*Energy Conversion and Management: X* 26, 100964, 2025 | 2025 | Cited: 24
26. **Review of insertion scenarios in enhancement performance of double-pipe heat exchanger: case of cut twist tape**  
*Chemical Engineering and Processing-Process Intensification* 213, 110308, 2025 | 2025 | Cited: 18
27. **Current developments in the use of nanotechnology to enhance the generation of sustainable bioenergy**  
*Sustainable Materials and Technologies* 43, e01266, 2025 | 2025 | Cited: 24
28. **Evaluation of multi-branch fin inserts for improved thermal response in latent heat storage systems: A numerical approach**  
*Case Studies in Thermal Engineering* 73, 106464, 2025 | 2025 | Cited: 14
29. **A systematic review of nuclear energy and public acceptance—A detailed analysis of evolution, emerging trends, and future research potentials**  
*Energy Exploration & Exploitation* 43 (5), 2276-2302, 2025 | 2025 | Cited: 20

30. **Investigation of the Two-Way Movement of Williamson Micropolar Fluid in a Porous Medium with Consideration of Activation Energy and Thermal Radiation**  
*South African Journal of Chemical Engineering, 2025 | 2025*
31. **Sustainable cooling solutions for lithium-ion battery thermal management: H. Togun et al.**  
*Journal of Thermal Analysis and Calorimetry, 1-47, 2025 | 2025 | Cited: 2*
32. **Effect of target plate material on heat transfer characteristics in graphene-water nanofluid jet impingement: P. Barmavatu et al.**  
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34. **Design and optimization of an off-grid power plant in the Mesopotamian Marshes of Iraq**  
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35. **ENHANCING ENERGY EFFICIENCY OF INDUSTRIAL BOILER APPLICATION BY THE INTEGRATION OF GROUND-SOURCE HEAT PUMPS AND PHOTOVOLTAIC-THERMAL SOLAR WATER COLLECTORS**  
*Case Studies in Thermal Engineering, 106550, 2025 | 2025*
36. **Machine learning in heat exchanger modeling: Recent trends and innovations**  
*International Communications in Heat and Mass Transfer 169, 109920, 2025 | 2025 | Cited: 6*
37. **A review of phase-change materials for building applications: innovations, assessments, and design implications**  
*Energy and Buildings, 116573, 2025 | 2025 | Cited: 10*
38. **Effect of Heated Wall Corrugation on Thermal Performance in an L-Shaped Vented Cavity Crossed by Metal Foam Saturated with Copper–Water Nanofluid**  
*Computation 13 (9), 218, 2025 | 2025 | Cited: 2*
39. **Effects of staggered transverse zigzag baffles and Al<sub>2</sub>O<sub>3</sub>–Cu hybrid nanofluid flow in a channel on thermofluid flow characteristics**  
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40. **Entropy generation due to MHD natural convection in a square enclosure with heater corners saturated porous medium using Cu/water nanofluid containing insulated obstacle**  
*Journal of the Brazilian Society of Mechanical Sciences and Engineering 47&nbsp;..., 2025 | 2025 | Cited: 5*
41. **Optimizing engineering design problems using adaptive differential learning teaching-learning-based optimization: Novel approach**  
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42. **Performance optimization of D2 tool steel machining using novel multi-material cladded electrodes in electric discharge machining**  
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45. **Evolution, trends, and future research directions of carbon capture, utilization and storage—A comprehensive bibliometric and systematic review**  
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46. **Innovative PCM-Gypsum plasterboard technologies for smart Building envelopes: recent advances and applications**  
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55. **Development and comparative analysis between battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV)**  
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*Solar Energy* 291, 113378, 2025 | 2025 | Cited: 39
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*Journal of Energy Storage* 105, 114684, 2025 | 2025 | Cited: 26
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*Case Studies in Thermal Engineering* 70, 106140, 2025 | 2025 | Cited: 12
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*Journal of Building Engineering*, 113771, 2025 | 2025 | Cited: 7
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*Handbook of Nanofillers*, 2805-2820, 2025 | 2025
79. **Maximizing charging/discharging capabilities of horizontal shell-and-tube latent heat storage systems with innovative curved fin inserts**  
*International Journal of Heat and Mass Transfer* 236, 126289, 2025 | 2025 | Cited: 75
80. **Trends and determinates of hydrogen energy acceptance, or adoption research: A review of two decades of research**  
*Sustainable Energy Technologies and Assessments* 73, 104159, 2025 | 2025 | Cited: 31
81. **Cooling lithium-ion batteries with silicon dioxide-water nanofluid: CFD analysis**  
*Renewable and Sustainable Energy Reviews* 208, 115007, 2025 | 2025 | Cited: 33
82. **Performance improvement of phase change material (PCM)-based shell-and-tube-type latent heat energy storage system utilizing curved fins**  
*Journal of Thermal Analysis and Calorimetry*, 1-15, 2024 | 2024 | Cited: 5
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*Energy and Buildings* 320, 114597, 2024 | 2024 | Cited: 26
84. **Accelerated melting dynamics in latent-heat storage systems via longitudinal and circular fins: A comprehensive 3D analysis**  
*International Communications in Heat and Mass Transfer* 156, 107602, 2024 | 2024 | Cited: 23
85. **PM2.5 concentration forecasting: Development of integrated multivariate variational mode decomposition with kernel Ridge regression and weighted mean of vectors optimization**  
*Atmospheric Pollution Research* 15 (6), 102125, 2024 | 2024 | Cited: 19

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*Journal of Building Engineering 94, 109762, 2024 | 2024 | Cited: 35*
88. **Unsteady MHD hybrid nanofluid mixed convection heat transfer in a wavy porous cavity with thermal radiation**  
*Journal of Thermal Analysis and Calorimetry 149 (5), 2425-2442, 2024 | 2024 | Cited: 19*
89. **Heavy metals prediction in coastal marine sediments using hybridized machine learning models with metaheuristic optimization algorithm**  
*Chemosphere 352, 141329, 2024 | 2024 | Cited: 24*
90. **Hydrogen energy systems: Technologies, trends, and future prospects**  
*Science of The Total Environment, 173622, 2024 | 2024 | Cited: 92*
91. **Revolutionizing the latent heat storage: Boosting discharge performance with innovative undulated phase change material containers in a vertical shell-and-tube system**  
*Journal of Computational Design and Engineering 11 (2), 122-145, 2024 | 2024 | Cited: 72*
92. **A critical review on the efficient cooling strategy of batteries of electric vehicles: Advances, challenges, future perspectives**  
*Renewable and Sustainable Energy Reviews 203, 114732, 2024 | 2024 | Cited: 104*
93. **A review on recent advances on improving fuel economy and performance of a fuel cell hybrid electric vehicle**  
*International Journal of Hydrogen Energy 89, 22-47, 2024 | 2024 | Cited: 132*
94. **Heat transfer enhancement of phase change materials using letters-shaped fins: A review**  
*International Communications in Heat and Mass Transfer 159, 108096, 2024 | 2024 | Cited: 93*
95. **Design and optimization of a household photovoltaic/thermal collector with serpentine tube: energy and exergy analysis**  
*Applied Thermal Engineering 246, 122983, 2024 | 2024 | Cited: 32*
96. **Deep clustering of reinforcement learning based on the bang-bang principle to optimize the energy in multi-boiler for intelligent buildings**  
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97. **A critical review on phase change materials (PCM) based heat exchanger: Different hybrid techniques for the enhancement**  
*Journal of Energy Storage 79, 109840, 2024 | 2024 | Cited: 243*
98. **Revolutionizing latent heat storage: boosting discharge performance with innovative undulated PCM container shapes in vertical shell-and-tube systems**  
*Journal of Computational Design and Engineering, qwae020, 2024 | 2024 | Cited: 3*
99. **Data driven insights for parabolic trough solar collectors: Artificial intelligence-based energy and exergy performance analysis**  
*Journal of Cleaner Production 443, 141069, 2024 | 2024 | Cited: 24*
100. **Innovative arrangement of circular angled fins for maximizing the discharge performance of triple-tube heat storage systems**  
*International Journal of Low-Carbon Technologies 19, 938-951, 2024 | 2024*
101. **Experimental and theoretical analysis of the solar adsorption refrigeration system under south Iraq climate condition**  
*Journal of Building Engineering, 109226, 2024 | 2024*
102. **PM2. 5 concentration forecasting: Development of integrated multivariate variational mode decomposition with kernel Ridge regression and weighted mean of vectors optimization**  
*Atmospheric Pollution Research, 102125, 2024 | 2024*
103. **Design and optimization of a household photovoltaic/thermal collector with serpentine tube: Energy and exergy analysis**  
*Applied Thermal Engineering, 122983, 2024 | 2024*

104. **Hybrid Nanofluid Unsteady MHD Natural Convection in an Inclined Wavy Porous Enclosure with Radiation Effect, Partial Heater and Heat Generation/Absorption**  
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105. **Experimental evaluation of thermal efficiency, electrical efficiency, and power production of low-concentrating photovoltaic-thermal system with micro-jet channel**  
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*Journal of Energy Storage 79, 110188, 2024 | 2024 | Cited: 30*
107. **Unsteady MHD hybrid nanofluid mixed convection heat transfer in a wavy porous cavity with thermal radiation**  
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108. **Corrigendum to "The potential of arch-shaped fins for energy-charge enhancement in triplex-tube heat storage: Comparative analysis and optimization"[Volume 79 (2024) 110188]**  
*Journal of Energy Storage 82, 110524, 2024 | 2024*
109. **Heat transfer and fluid flow characteristics over a backward-facing step (BFS) containing square-rectangular ribs integrated as forward-facing steps (FFS)**  
*Journal of Thermal Analysis and Calorimetry, 1-15, 2024 | 2024*
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112. **A review of design parameters, advancement, challenges, and mathematical modeling of asphalt solar collectors**  
*Journal of Thermal Analysis and Calorimetry 149 (1), 41-61, 2024 | 2024 | Cited: 23*
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118. **Analysing fluid flow and heat transfer comparatively in flow passage systems: Evaluating thermal impacts and geometric configurations**  
*International Journal of Thermofluids 24, 100894, 2024 | 2024 | Cited: 12*
119. **Al<sub>2</sub>O<sub>3</sub>—Cu hybrid nanofluid flow and heat transfer characteristics in the duct with various triangular rib configurations**  
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127. **Performance improvement of phase change material (PCM)-based shell-and-tube-type latent heat energy storage system utilizing curved fins**  
*Journal of Thermal Analysis and Calorimetry* 149 (23), 14241-14255, 2024 | 2024 | Cited: 22
128. **Sustainable Drilling Fluids: A Review of Nano-Additives for Improved Performance and Reduced Environmental Impact**  
*Processes* 12 (10), 2180, 2024 | 2024 | Cited: 33
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*Scientific Reports* 14 (1), 19882, 2024 | 2024 | Cited: 11
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132. **A review of the current situation and prospects for nanofluids to improve solar still performance**  
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133. **Effects of SiO<sub>2</sub> Nanoparticle Sizes and Concentrations on Enhancing Heat Transfer in Concentrated Solar Collectors: A CFD Simulation**  
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