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Paper Title: Renewable Energy Integration in Microalgae-Based Biofuel Systems: Exploring Solar, Geothermal, and Advanced Conversion Pathways

Bio:

Seyed Abolfazl Mirnezami is a Ph.D. candidate in Mechanical Engineering at Macquarie University, Sydney, Australia. His research focuses on the sustainable development of clean fuel technologies using advanced life cycle assessment (LCA) methods to evaluate the environmental, economic, and social impacts of biodiesel production systems powered by hybrid renewable energy sources. He holds a Master's degree in Energy Systems – Energy and Environment from the Iran University of Science and Technology and previously worked as a Mechanical Engineering Specialist at Besat Power Plant in Tehran, where he gained extensive experience in power generation systems and energy optimisation.

He has authored several publications in leading international journals such as *Energy* and *Sustainable Energy Technologies and Assessments*. His work integrates environmental (LCA), economic (LCC), and social (S-LCA) assessments to establish scalable pathways for clean biofuel production under circular economy frameworks. His research interests include renewable hybrid systems, carbon reduction strategies, process sustainability, and cleaner production of biodiesel.