
Editorial

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Biographical notes: Fares A. AlMomani is a Professor in the Department of Chemical Engineering at Qatar University. His research expertise involves water and wastewater treatment technologies with focus on the applications of advanced oxidation technologies, attached growth biological processes and microalgae. His recent work includes the use of microalgae for water treatment, CO₂ capturing and production of added value products, developing an in-line and real-time monitoring method for water and wastewater. He also has an outstanding expertise in the development of nano-materials and catalysis that can be combined with the solar renewable energy and used for wastewater treatment as well as energy production.

Majeda Khraisheh has an impressive number of grants obtained from a variety of sources such as QNRF, industry and internal grants from university. She has a sustained research that is recognised in the top 2% worldwide researcher in two categories related to research performance in 2019 and career long research output as per recent Stanford University publication. In addition, she has more than 10,000 citations which contributed effectively towards the subject ranking of chemical engineering and Qatar University. In addition, her research activities align with the Qatar National Research Strategy priority areas related to energy and the environment. She has many projects dealing with CO₂ management, catalysis, brine management and desalination.

Nowadays, scientific evidence confirmed the occurrence of global warming with dramatic effects on different parts of the ecosystem (water, air and soil). High temperatures cloud increases the evaporation rates and increase precipitation triggering storms and floods. On other hand, the drought severity influences agriculture and food security, disturb ecosystems balance and affects human/animal health. Research work on the topics related to process optimisation, energy production and transfer, safety as well as environmental protection are of great interest, due to the adverse effects on solving problems associated with *global warming* as well as their direct impact on the economy, environment, public health and safety. This is another factor to add up to the importance of engineering-based technologies to solve global warming problem. In addition, the exponential rise in industrial material production and use by an ever-increasing human population poses a significant environmental danger. The fate of advanced materials produced from existing and new applications has created challenges in terms of their fate in the environment, as well as their impact on living organisms/biota, and their clearance from the environment. Therefore, it is essential to increase the knowledge regarding the development of innovative treatment technologies, monitoring and control. There is a

continuous need to emphasise on the importance of the engineering design and practice for the development of safe and environmentally friendly processes and products. The contribution of experimental and theoretical multidisciplinary research in establishing principles and providing state of art solutions to protect the environment, provide integrated pollution control approach or providing recommendation for future research direction are highly encouraged.

The papers published in this special issue were presented in the 8th Global Conference on Global Warming (GCGW 2019). The conference was held in Doha, Qatar in the period April 22 to 25, 2019, and supported by Qatar University (QU) and Qatar National Research Fund (QNRF). The conference aims at promoting researches in the field of renewable energy, sustainable environment and advanced materials. The conference program included eight internationally reputed keynote and invited speakers as well as oral and poster presentations. Speakers in this conference have presented the latest progress of knowledge in the area related to solution to global warming problem, renewable energy, sustainability, advanced materials, energy storage and transport, climate change, catalytic processes, hydrogen production, biofuels and biorefinery.

This special issue, 'Studies associated with global warming', contains novel research topics related to heating and cooling process in hot climates, climate change projection, real time monitoring of hydropower plants, impact of climate change on CO₂ emission and energy, impact of global warming on land surface temperature, control of gaseous emissions, energy efficiency with respect to sustainability, renewable energy initiatives, CO₂ capture and conversion, wastewater treatment, and others. All papers were subjected to a rigorous peer-review process in order to improve their quality and scientific content.

We would like to express our gratitude to Prof. Ibrahim Dincer (Founding Chair of the GCGW conference series) for providing the opportunity and ongoing support in organising the GCGW 2019 Conference. We would like to express our gratitude to the QU and QNRF for their financial and logistical assistance. We would like to thank the Chief Editor (Prof. Ibrahim Dincer) of the *International Journal of Global Warming (IJGW)* and his editorial team, as well as the outstanding contributions of the authors and peer reviewers, for making this special issue a huge success.