

36<sup>th</sup> International Conference on

# NANOMATERIALS AND NANOTECHNOLOGY

July 27-28, 2023 | Hamburg, Germany

## Heat exchangers technology and applications in heat exchanger engineering

**Abdeen Mustafa Omer**

Energy Research Institute (ERI), United Kingdom.

Over the years, all parts of a commercial refrigerator, such as the compressor, heat exchangers, refrigerant, and packaging, have been improved considerably due to the extensive research and development efforts carried out by academia and industry. However, the achieved and anticipated improvement in conventional refrigeration technology are incremental since this technology is already nearing its fundamental limit of energy efficiency as described in 'magnetic refrigeration' which is an evolving cooling technology. The word 'green' designates more than a colour. It is a way of life, one that is becoming more and more common throughout the world. An interesting topic on 'sustainable technologies for a greener world' details about what each technology is and how it achieves green goals. Recently, conventional chillers using absorption technology consume energy for hot water generator but absorption chillers carry no energy saving. With the aim of providing a single

point solution for this dual purpose application, a product is launched but can provide simultaneous chilling and heating using its vapour absorption technology with 40% saving in heating energy. Using energy efficiency and managing customer energy use has become an integral and valuable exercise. The reason for this is green technology helps to sustain life on earth. This not only applies to humans but to plants, animals and the rest of the ecosystem. Energy prices and consumption will always be on an upward trajectory. In fact, energy costs have steadily risen over the last decade and are expected to carry on doing so as consumption grows. Refrigerants such as hydrochlorofluorocarbons (HCFCs) are present in the ground source heat pump (GSHP) systems and can pose a threat to the environment through being toxic, flammable or having a high global warming potential.

**Keywords:** Absorption cycles, environment, heat pumps, refrigeration cycles, thermodynamic.

### Biography

Abdeen Mustafa Omer (BSc, MSc, PhD) is an Associate Researcher at Energy Research Institute (ERI). He obtained both his PhD degree in the Built Environment and Master of Philosophy degree in Renewable Energy Technologies from the University of Nottingham. He is a qualified Mechanical Engineer with a proven track record within the water industry and renewable energy technologies. He has been graduated from University of El Menoufia, Egypt, BSc in Mechanical Engineering.

abdeenomer2@yahoo.co.uk