

Special Issue

Refrigeration, Air Conditioning and Heat Pumps: Energy and Environmental Issues II

Message from the Guest Editors

Refrigeration, air conditioning and heat pumps (RACHP) have an important impact on the final energy uses of many sectors of modern society, such as residential, commercial, industrial, transport, and automotive. Moreover, they have also an important environmental impact due to the working fluids that deplete the stratospheric ozone layer (phased out under the Montreal Protocol, 1989) and impact on climate change. To cope with this last aspect, the Kigali Amendment of the Montreal Protocol (2016), has started a phase down procedure for high-GWP HFCs, to be completed by the mid-21st century. All these issues will pose great challenges to the RACHP industry over the next few decades, such as:

- the search for new working fluids, able to substitute high-GWP HFCs,
- the safety aspects associated to the mostly flammable alternatives to high-GWP HFCs,
- the expected growth of air conditioning in developing countries and the subsequent increase in GHG emissions,

The common ground for all these challenges is that the energy efficiency of components and systems has to increase in order to keep energy consumption and GHG emissions associated with RACHP under control.

Guest Editors

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