
Editorial

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This special issue of the *International Journal of Exergy* is a collection of selected papers on exergy analysis presented at the Second International Green Energy Conference held at the University of Ontario Institute of Technology, Oshawa, Ontario, Canada from June 25–29, 2006. These papers give an overview of selected advances in key areas of exergy analysis and they underwent an additional review process prior to publication in this special issue.

The importance of exergy analysis as a major design tool in the assessment of energy systems and method for their performance improvement has found widespread acceptance in recent years. As future energy technologies strive to reach the maximum limits of performance, exergy analysis will continue to have an increasingly important role, because exergy processes govern the physical limits of energy conversion. This journal is devoted to this key field of exergy analysis. Growing worldwide concern over the adverse effects of greenhouse gas emissions from fossil fuels, including health problems and climate change, can be effectively addressed by more efficient utilisation of energy conversion systems. Exergy analysis is a valuable tool in this regard, since it identifies and quantifies the locations of irreversibilities, thereby guiding the subsequent re-design by targeting high exergy loss regions to improve energy efficiency. A higher exergy efficiency usually translates into better sustainability and utilisation of limited

energy resources. Transition from fossil fuels to green energy sources is another primary way of addressing greenhouse gas and environmental sustainability problems. Using renewable energies in greater extent and improving the efficiencies of existing fossil fuel systems through exergy analysis, in conjunction with each other, are powerful ways to provide new energy solutions.

The practical value of exergy analysis has been widely documented by many researchers over recent decades. As its value continues to gain acceptance in industrial practice and public awareness, it will help society and industry achieve technological goals that would not be otherwise possible. This journal and special issue aim to continue these important trends, by fostering more understanding and utilisation of exergy analysis by industry and policy makers. In this way, more efficient energy systems can be developed and policy makers can have better tools to set energy and environmental policies.