

Preface

Tribology is the science and technology of friction, lubrication, and wear. Primarily, mechanical engineers and mathematicians are concerned with this discipline. Bio-tribology is also a fast-emerging field. Tribology of orthopaedic biomaterials and artificial joints is the field of active interest to many. Nano-tribology which studies friction phenomenon at the nanometer scale is also a promising new development in tribology.

The organizers of the *International Conference on Advances in Tribology and Engineering Systems* (ICATES) wish to provide a platform for deliberations on theoretical calculations and experimental results in different areas of tribology. The papers are so selected that, as far as possible, equal emphasis is laid on both theoretical and experimental research. The response to the conference was overwhelming on both national and international fronts. The submitted papers were by renowned experts in the field.

Broadly, the contents of this set of proceedings can be classified into two aspects, namely: analytical methods and experimental validation. There are several papers incorporating the contribution of magnetic fluid (micro polar fluid and power law fluid) toward the reduction of adverse effects of roughness and slip. Nano-tribology in the context of rheology, also figures in some of the studies. A good number of investigations deal with the evaluation of friction and wear from the point of view of design.

There are studies to indicate that tribological properties can be enhanced by mainly using polymers and nanocomposites; and by considering fiber surface modifications. The discussions contained in these proceedings also underline the importance of CuO nano-lubricants at elevated temperatures.

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