Guest editorial: Tribology for sustainability & reliability

Nowadays, it is very important to consider the sustainability of products and their reliability to improve the efficiency and reduce the losses due to friction, wear, corrosion and erosion. The sustainability and reliability also play a very important role in the development of society through contributing to GDP of country (Katiyar and Rao, 2022; Katiyar *et al.*, 2022). Therefore, the special issue – part-1 of Tribology for Sustainability & Reliability was published that was focused on methods to improve the tribological properties by improving the design, materials and theoretical analysis (Katiyar *et al.*, 2021). To continue pervious part-1, the special issue – part-2 publishes remainder of the salient contributions from researchers worldwide, including those who presented their ideas in the International Tribology Research Symposium (ITRS 2020) held in virtual mode during November 5–7 in 2020. Based on the connect-communicate-collaborate-contribute philosophy, the ITRS, series promote free exchange of latest ideas and innovations to attract the significant research contributors across worldwide. The renowned plenary, keynote and invited speakers extended unflinching and unconditional support to ITRS 2020 with their towering contributions.

The manuscripts included in this issue bring together salient works of researchers in tribology interested in finding solutions for sustainability & reliability. The perspectives, principles, challenges and future directions on tribology for sustainability & reliability are discussed. This special issue – part 2 presents scientific contributions and perspectives of tribology to lead the way for sustainability & reliability. The papers in this special issue – part 2 deliberate about the oil starvation in hydrostatic bearing, bio-inspired coatings in hydrodynamic bearings, nanohybrid composite for joint replacement, surface texturing of screw pump rotor, environmentally friendly ionic liquids and lubricants, and friction materials. The manuscripts presented in this special issue – part 2 are integrated with the novel areas of research on Tribology for sustainability & reliability:

- lubrication performance enhancement;
- biomimetic approaches;
- sustainable coatings and composites;
- surface texturing;
- biodegradable lubrication; and
- friction and wear in energy conservation.

It is more important now than ever for tribologists to consider sustainability and reliability issues. The novel concepts in tribology are clearly the strong driving forces towards sustainability and reliability. There is apparently potential synergy in the tribological approaches and principles in achieving the required solutions to sustainability & reliability. There is an apparent need for the development of the field of tribology in coherence with science and technology in such a manner that it could benefit sustainability & reliability. More ideas are welcome in the development of quantitative metrics to assess the impact of tribology on sustainability & reliability. The highlights of the economic benefits and advantage of tribology for sustainability & reliability are likely to have a far greater impact on the policies makers and funding agencies.

The integration of areas of friction, wear and lubrication in tribology for sustainability & reliability remains the primary challenge and defines future directions of research in tribology. We hope that the valuable contributions in this special issue – part 2 will be of interest to tribologists and will pave the way for the development of tribology for sustainability & reliability. As the global interest in developing technologies for sustainability & reliability continues to rise, tribology will certainly play a critical role in the advancements in the technologies and components worldwide.

The special issue – part 2 theme of "Tribology for Sustainability & Reliability" provide the reader an insight on impact of tribology for sustainability & reliability. We would like to earnestly thank Editor, Univ.-Prof Dr Carsten Gachot and Associate Editor, Prof Dr.-Ing Andreas Rosenkranz, Emerald Publishing Group and our esteemed reviewers, for their enormous solidarity and support to this special issue.

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Industrial Lubrication and Tribology
74/8 (2022) 913

[DOI 10.1108/ILT-10-2022-548]