
Guest editorial

Machining, Mechanics and Tribology

Dear colleagues,

It is our great pleasure to launch this special issue entitled “Machining, Mechanics and Tribology” in *Industrial Lubrication and Tribology* to summarize the latest findings in this interdisciplinary research topic. The first studies on tribology, including friction, wear and lubrication, date back to the ancient Egypt. During the construction of the pyramids, the Egyptians had already realized that the efforts involved in transporting heavy stones can be significantly reduced when putting rolling elements underneath them. Most probably, this can be considered as the first evidence that there is a significant difference between rolling and sliding friction. Over the centuries, many prominent researchers, including Da Vinci, Newton and Coulomb, have worked on frictional problems, thus trying to explore the underlying phenomena. Historically, tribology is mainly connected to mechanical engineering and has been treated by mechanical engineers.

However, over the past few decades, it has become evident that tribology is a multi-disciplinary research topic involving mechanical engineering, materials science, chemistry, physics and even biology, among others. Researchers have become aware of the fact that manufacturing processes affect both the

resulting mechanical properties, as well as the remaining properties of materials, such as surface roughness, chemistry and micro-structure. The aforementioned aspects significantly influence the resulting friction and wear performance, which emphasizes that for the optimization of tribological properties, all these aspects/properties need to be considered together. The thorough analysis of tribological systems is further complicated because many properties are highly interconnected, which makes tribology a highly complex and sophisticated research topic with a wide range of potential variables.

In this regard, we have initiated this special issue to emphasize these aspects and to present studies aiming at addressing some of these aspects at the same time. Therefore, we hope that the contributions contained in this special issue provide the reader a good overview about the interconnections of machining, mechanics and tribology. We wish to motivate more researchers to work in this multi-disciplinary, highly challenging research area, thus further extending – or even kick-starting – research lines in this exciting field.

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