MECHANICAL ENGINEERING MSc SEMINAR (30 min.)

Monday, July.13.2026 at 14:05-15:35, Room 217

Exploring the Applicability of Analytical Wear Models in Polymer-Metal Contacts

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Advisers: Prof. Morel Groper and Dr. Roman Goltsberg

Wear in polymer–metal contacts is critical to the performance and stability of many mechanical systems, especially under sliding conditions where friction and material loss arise from the complex interplay of surface topography, contact mechanics, and material response. Accurate wear prediction remains a major challenge due to the complex interaction between surface conditions and contact mechanics. Furthermore, because analytical wear models are usually developed using simplified assumptions, it is important to carefully assess their accuracy against empirical data to determine whether they are reliable for real-world engineering applications.

In this seminar, the primary wear mechanisms in polymer bearings and the governing equations used to describe them will be introduced. Relevant contact mechanics principles will also be discussed to explain how surface interactions influence wear behavior under varying operating conditions. The lecture focuses on a direct comparison between experimental wear data and existing analytical models in order to evaluate their predictive capability and practical limitations. Ultimately, this work aims to present the boundaries of applicability of existing analytical wear models for polymer bearings and to propose a structured methodology for their validation against laboratory wear data, thereby supporting the rational selection of wear models in the design of polymer based tribological components for industrial applications.

Seminars Coordinator: Prof. Sefi Givli

Note: the seminar will be given in English