ESMC 2025 - Fretting/fatigue Minisymposium 8 - 5

Organizers: Siegfried Fouvry (Ecole des Mines de Paris), Tomasz Liskiewicz (Manchester Metropolitan University) et Sylvie Descartes (LAMCOS)

In today's engineering landscape, conventional analytical frameworks often fall short in accurately capturing the complex interplay of mechanical, material, and environmental factors inherent in fretting and fatigue processes. This mini-symposium seeks to engage researchers and practitioners to discuss and showcase recent advancements in the understanding and analysis of fretting and fatigue phenomena. Topics include, but are not restricted to:

- Multi-scale Approaches: Exploration of theoretical and computational methods for characterising fretting and fatigue behaviour across multiple length and time scales.
- Characterisation and Modelling: Novel experimental, theoretical and numerical approaches to characterise or model fretting and fatigue processes.
- Mechanistic Insights: Researching underlying physical phenomena and mechanisms governing fretting and fatigue behaviour, including the development of strain gradient extensions and dislocation mechanics within crystal and plasticity theories, third body behaviour, and effect of the environment.
- Engineering Applications: Demonstrating the practical implications of fretting and fatigue analysis in addressing real-world engineering challenges.