



***lubricants***



*Special Issue Reprint*

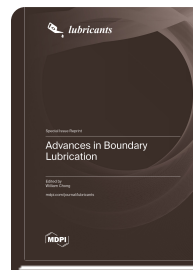
## **Advances in Boundary Lubrication**

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This Reprint summarises recent advancements in the science and application of boundary lubrication. The collection of articles addresses the fundamental mechanisms of friction and wear at contacting interfaces, including molecular dynamics simulations, predictive statistical models, and methodologies for tribological testing. Experimental studies emphasise the importance of advanced additives, such as MXenes and carbon quantum dots, alongside sustainable formulations derived from vegetable oils and esters. Contributions also investigate tribosystem robustness, forging processes utilising bio-based lubricants, and the integration of modelling with experimental validation. By combining theoretical insights, innovative materials research, and practical testing strategies, this Reprint provides a comprehensive overview of how boundary lubrication is evolving in response to the demands of modern machinery and sustainable engineering. It serves as a valuable resource for researchers and practitioners seeking to understand and enhance lubricant performance under challenging contact conditions.



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