



2022 ELGI AGM Best Paper Award

32nd ELGI AGM

30th April – 3rd May 2022 Hamburg Germany

ELGI's Best Paper Award Committee unanimously selected the paper & presentation:

The Influence of Lubricants on Fretting Wear, Particularly at Low Temperature

as the winner of ELGI's Best Paper Award 2022.

Presented by Author: Jie Zhang (Imperial College)

Co-Authors: Alan Wheatley, Sarah Matthews, Edward Worthington, Rihard Pasaribu (Shell)

Co-Author: Philippa Cann, (Imperial College)

All the presentations were evaluated on several criteria that covered

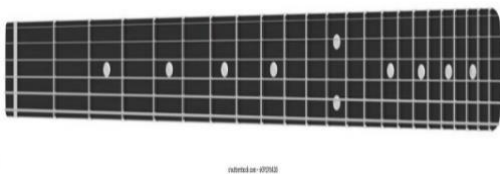
- Content of the Paper
- Quality of the Presentation
- Embodied the Spirit of Originality & Technological Innovations

On behalf of this committee and the ELGI board we would like congratulate Jie Zhang on this important and worthy achievement.



Dr. Jie Zhang received his PhD degree in 2011 from Tribology Group, Dept. of Mech. Eng. Imperial College and then continuously worked in the same group as a Research Associate. His research covers boundary lubrication, wear measurement, lubricant additives, EHD friction, surface engineering, MEMS, mechanochemistry, greases, etc.

The Influence of Lubricants on Fretting Wear, Particularly at Low Temperature



Fretting, damage caused by oscillatory motion of a tribological contact, is complicated! There are many variables which can affect the way a lubricant can protect the surfaces against wear. When low temperature is included it becomes even more complex.

This study uses the HFRR (High Frequency Reciprocating Rig) to test a range of very different greases relevant to wind turbine blade bearings. The tests are carried out at a range of temperatures down to -40°C and several factors are monitored during and after the test. Not only friction but also film build-up or breakdown is monitored during the test using electrical contact resistance (ECR). After the test, wear is measured but the resulting film is also analysed using Raman spectroscopy. It looks into the effects of the grease formulation and includes other related low temperature properties.