14th World Congress on Computational Mechanics (WCCM XIV)
8th European Congress on Computational Methods in Applied Science and Engineering (ECCOMAS 2020)
July 19- 24, 2020, Paris, France

TRIBOLOGY: A MULTISCALE AND MULTIPHYSIC PROBLEM

300

V. MAGNIER* AND T. CHAISE†

* LaMcube, univ. of Lille, CNRS FRE 2016
Avenue Paul Langevin, 59655 Villeneuve d'Ascq
vincent.magnier@polytec-lille.fr,

† LaMCoS, Insa-Lyon, CNRS UMR 5259
INSA, Bât. Sophie Germain, Avenue A. Einstein
thibaut.chaise@insa-lyon.fr,

Key words: Contact modeling, multi-scale problem, multi-physical problem,

ABSTRACT

Due to the need to better understand the phenomena involved in a friction contact, it is now necessary to be able to take into account models integrating various scales (system, roughness, etc.) and various physics (thermomechanics, dynamics, physico-chemistry, etc.). Thus, the difficulty lies in the predominance and multiplicity of couplings and in the evolution that must be integrated into the models.

More precisely, through this mini-symposium, the objective is to focus on friction problems, imperfect interfaces, whether geometric (roughness, etc.) and/or in the presence of heterogeneous materials on different scales.

In parallel and in order to be able to deal with these problems in a reasonable time, it is then essential to develop new efficient algorithms.

Thus, we would like to build on this mini-symposium to establish new interdisciplinary links between mechanics, modelers, mathematicians and computer scientists.

The topics covered include (but not limited to):

- Multi-physical couplings
- Multi-scale approaches
- Third body
- Theory, Modeling and Simulation
- Biotribology
- Wheel/Rail Contact
- Wear
- Friction Materials
- Surface Texturing