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Co-Chairs: Wei Xiong, University of Pittsburgh; Lingti Kong, Shanghai Jiao Tong University; Jiawei Mi, Lars-Erik Lindgren, Lulea University of Technology

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FEM investigation of spike forging test

Josef Hodek; Miroslav Urbanek; Michal Duchek, COMTES FHT

ABSTRACT

The spike forging test is an experimental tribological testing method. When combined with the FEM simulation, it can be used to determine tribometric conditions during specimen forming. By this relatively simple technique, friction boundary conditions can be obtained for FEM simulations of complex problems. This paper describes the use of an FEM simulation linked to an optimization algorithm for finding friction conditions during spike forging. Experimental data were measured on the 38MnVS6 material using three lubrication procedures in the range of 700–1200°C. The FEM simulation was carried out using the MSC Marc software and optimized by means of the Simulia ISIGHT tool.

KEYWORDS: spike forging test, FEM, optimization, MSC Marc, ISIGHT