

APPLICATION OF MULTIPLE REGRESSION AND NEURAL NETWORK FOR MODELLING OF FRICTION PHENOMENON

Summary – The article contains regression models of friction phenomenon description in sheet metal forming. The applied multiple regression analysis and artificial neural networks allow to limit or eliminate time-consuming friction research with the purpose of determination of friction coefficient value for wide range of friction conditions variability. Furthermore these methods do not require knowledge of all parameters influencing on tribological phenomena and their interactions in the contact zone. To build friction models the results of a strip drawing test in dry friction conditions were utilized. The aim of performed friction tests was to determine the sheet surface roughness, surface roughness of rolls and holder force on friction coefficient value. Multiple regression analysis was carried out using user subroutine in *Matlab* software. To build neural network model *Statistica Neural Networks* software package was applied.