Contribution ID: **15** Type: **Presentation at the conference**

An improved model of hardening gear wheels and determining the electrical efficiency of the process

Tuesday 12 September 2023 10:00 (20 minutes)

The paper presents an improved model of induction hardening of gear wheels. Although the mathematical model of the hardening is well known, some parameters are subject to uncertainties (temperature dependence of material parameters, coefficient of convective heat transfer, or emissivity). The authors offer a methodology based on calibration and optimization techniques to minimize the relevant errors and illustrate it with a typical example.

Authors: Dr SMAGÓR, Adrian (Silesian University of Technology); Dr SMALCERZ, Albert (Silesian University of Technology); Mr DESISA, Debela (Silesian University of Technology); Prof. DOLEŽEL, Ivo (University of West Bohemia, Faculty of Electrical Engineering); Prof. BARGLIK, Jerzy (Silesian University of Technology); Dr KOTLAN, Václav (University of West Bohemia, Faculty of Electrical Engineering)

Presenter: Prof. DOLEŽEL, Ivo (University of West Bohemia, Faculty of Electrical Engineering)

Session Classification: Industrial Applications

Track Classification: Industrial applications