

## IMPROOVING THE NONSTANDARD GEARS TRANSMISSION PERFORMANCES BY USING DIFFERENT GENERATION GEAR RACK

Flavia Chira<sup>1</sup>, Lucian Butnar<sup>1</sup>, Mihai Banica<sup>1</sup> & Liliana Dragan<sup>1</sup>

<sup>1</sup>North University of Baia Mare-Romania, Department of Engineering and Technological Management

Corresponding author: Flavia Chira, Flavia.Chira@ubm.ro

**Abstract:** The tendencies in the last years gear design research are aimed to improving the functional performances of the gears transmission by using computational method for designing non-standard gears that offer a better solution to the beneficiary request, in relation with the classical one. The paper present results obtained by the paper authors with original applications in Matlab and AutoLisp developed for designing, modelling and studying geometrical and functional parameters of the non-standard spur gears with involutes asymmetrical profiles of the teeth. The presented study is focused to emphasize the influence of using for design the pinion and the gear, of the asymmetric gear transmission, one single or two different generation asymmetric gear rack. It was carry out a comparison between the significant values of bending stress, contact stress, transmission error that result in the mentioned cases of design.

**Key words:** computational, gear design, asymmetric, generation, gear rack.

