

Preface

The presented special issue is dedicated to the recent achievements in materials science and materials processing technologies used in modern mechanical engineering.

Laser surface modification of Hastelloy, development of the manufacturing process for high-chromium steel large welding roll and the forging of piston connecting rods are subjects of the first chapter.

Some latest issues of engineering tribology are analysed in the second chapter. Here are investigated the lubrication features in the journal-bearing systems and induction-treated linear guides in the transmission elements, fatigue crack propagation in aluminium alloy under four-point bending and mechanism of multi-particle erosion of the iron target.

The next chapter contains articles on materials and technologies used in opto- and microelectronics. The luminescence features of activated molybdate-based phosphor and wafer defect identification in semiconductor processing are presented here.

The last part of the special issue is dedicated to the numerical investigation of heat and mass transfer processes in various engineering systems.

This special edition will be helpful to researchers and engineers from many branches of modern manufacturing.