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Mechanical Properties and Simulation during Metal Milling Processing

Guest Editor:

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Deadline for manuscript submissions:
closed (31 December 2020)

Message from the Guest Editor

Over the years, the simulation of machining processes has evolved from simple analytical laws, to complex multiphysics coupled models. The methods for engineers for highly competitive domains need to optimize the production costs and reliable simulations models.

The aim of this Special Issue is to collect state of the art research around various domains of expertise, such as mechanical engineering, material sciences, mathematics, regarding its simulations and its experimental validation. Aspects such as the prediction of cutting forces, prediction of surface integrity, evaluation of the mechanical properties of machined material, will be welcome.

Topics of interest include:

- Modelling of cutting forces in milling operations by means of microscopic, mesoscopic, or macroscopic models;
- Determination of material properties relevant to the simulation of milling operations;
- Prediction of the quality of milled parts regarding dimensional tolerances, roughness, surface integrity, or residual stresses;
- Stability of operations against vibrations such as chatter;
- Advanced techniques (robotic milling, laser-assisted milling, cryogenic milling, hybrid milling, etc.).

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Message from the Editor-in-Chief

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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