Special Issue

Ultra-Precision Machining of Difficult-to-Machine Materials

Message from the Guest Editor

Difficult-to-machine materials, such as semiconductor, laser crystal,etc. have been widely used in aerospace, 5G networks, and new energy vehicles owing to their excellent mechanical properties and steady chemical properties. However, these materials have high brittleness, high hardness, and high elasticity which pose great challenges for efficient machining. Understanding the mechanical properties, revealing the damage evolution and material removal mechanism in micro- and nanoscales, exploring innovative machining technology, and optimizing machining process parameters are of great significance to realize the high-efficiency and precision machining of difficult-to-machine materials. The scope of this Special Issue includes but is not limited to:

- Precision machining technology of difficult-to-machine materials;
- In-depth characterization to reveal damage evaluation and removal behaviors that involved in machining processes;
- Numerical simulation of the material deformation and removal process;
- Surface engineering when it relates specifically to a manufacturing process;
- Design of cutting tools.

Guest Editor

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Editor-in-Chief

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