

# Preface

The issue on *Machining, Cutting, Blanking, and Severe Plastic Deformation (SPD) Processes* will address a broad spectrum of topics central to advanced manufacturing and material processing. It focuses on both experimental and numerical investigations aimed at enhancing the understanding of machining and SPD mechanisms. Particular emphasis will be placed on accurate material characterization and the formulation of robust constitutive models to predict material behavior under extreme deformation conditions such it occurs in machining, cutting and blanking. The issue is also exploring stress distribution in SPD techniques such as burnishing and stir processing, assessing their impact on mechanical performance. Critical aspects such as tool wear, frictional phenomena, and fracture mechanisms will also be examined. Additionally, the issue covers surface integrity, with attention to residual stress prediction, surface roughness, hardness, and microstructural transformations. Lastly, innovative cooling and lubrication techniques—including near-dry machining, Minimum Quantity Lubrication (MQL), and cryogenic methods—will be highlighted for their role in improving machinability, workability, and product performance.

## Editors

Umbrello, Domenico  
Matsumura, Takashi  
Arrazola, Pedro J.

University of Calabria  
Tokyo Denki University  
Mondragon University

## Co-editors

Courbon, Cédric  
Germain, Guenael  
Ducobu, Francois  
Rotella, Giovanna  
Ortiz de Zarate, Gorka  
Tamura, Soichi

École Nationale d'Ingénieurs de Saint-Étienne  
Arts et Métiers Institute of Technology  
University of Mons  
University LUM Giuseppe Degennaro  
Mondragon University  
Tokyo Denki University