

## Special Issue on **Mechanics, Fatigue, and Fracture of Structural Joints**

# CALL FOR PAPERS

For centuries, engineering structures have been made for people's everyday needs, such as buildings, transportation, construction equipment, infrastructures, and plants. To achieve the desired functionality, usually simple individual members are connected to each other to get the final complex desired structure. Depending on the design requirements, the structural elements can be connected in a nonpermanent or permanent manner. To ensure an adequate safety level and optimal structural joints durability, construction node tests and simulations are required to determine the effect of the various factors influencing the durability and strength of the joints. The types of different connections that have been developed and proposed to date are very huge; joints represent a crucial part of complex structures, and the consequence of their collapse can be the loss of human lives and economic resources.

Studies and research outcomes in this field are necessary to guide the development of new and advanced standards for a better design of structural joints, leading to beneficial effects in all the technologies where connection of structural elements is required.

The aim of this special issue is to gather the most recent research advancements in the field of structural joints safety and reliability. The analysis of initiation and fatigue crack growth in metallic permanent structural joints is of primary interest, but studies related to any other engineering material employed in bearing joint applications are also well fitted with the aim and scope of the special issue.

The submitted papers should deal with the impact of various factors, such as the microstructure, heat treatment, and environmental effects, on the safety of joints, with particular emphasis on those concerning the damage, crack initiation, and fatigue growth of defects.

Potential topics include but are not limited to the following:

- Factors influencing the fatigue life and crack initiation in welded joints
- Influence of geometric effects (notches, fillets, etc.) on the initiation and fatigue crack growth in joints
- Heat treatment and load frequency effects on the behavior of joints
- Influence of stress ratio on the behavior of welded elements under fatigue loading (crack growth)
- Effect of all the various factors (physical, chemical, and environmental) on the lifetime of welds
- Mechanics of joints made of nonmetallic materials (ceramics, polymers, etc.)
- Multiscale approach to the study of structural joints

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/amse/mffs/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

### **Lead Guest Editor**

Dariusz Rozumek, Opole University of Technology, Opole, Poland  
*d.rozumek@po.opole.pl*

### **Guest Editors**

Roberto Brighenti, University of Parma, Parma, Italy  
*roberto.brighenti@unipr.it*

Zbigniew Marciniak, Opole University of Technology, Opole, Poland  
*z.marciniak@po.opole.pl*

Marek Smaga, Technische Universität Kaiserslautern, Kaiserslautern, Germany  
*smaga@mv.uni-kl.de*

### **Submission Deadline**

Friday, 23 November 2018

### **Publication Date**

April 2019