



## In Situ X-Ray Diffraction on Metals and Alloys

Guest Editor:

**Dr. Guillaume Geandier**

Microstructures and Stresses  
Group, Science and Engineering  
of Materials and Metallurgy  
Department of the Jean Lamour  
Institute, CMRS UMR 7198,  
Université de Lorraine, Campus  
Artem, 2 allée André Guinier, BP  
50840, CEDEX, 54011 Nancy,  
France

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### Message from the Guest Editor

Dear Colleagues,

With new-generation diffractometers, detectors and synchrotron sources, it is time to focus our research on metals and alloys developed with in situ X-rays methods.

The aim is to describe several kinds of results using original devices that have been developed in laboratories or specially designed for synchrotron beamlines. Results will form a large part of this Special Issue, but some focus is needed on the specificities of the sample environment due to the specificities of the metallic samples and their interaction with X-rays (high absorption, fast or low kinetics of the studied phenomena, etc.) and also the work to be done with the data. In situ analysis means a lot of data to analyze with several constraints (large volume, synchronization of signals, evolution of the sample, multiple analysis, statistics, ...)

The main idea of this particular issue is to show the impressive results that can be obtained using in situ X-rays; the work that needs to be done to design (or even use) a sample environment adapted to metals and alloys analysis; the time and work required for data extracted from the complete device.





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Department of Materials Science  
and Engineering, College of  
Engineering & Applied Science,  
University of Wisconsin-  
Milwaukee, 3200 N. Cramer  
Street, Milwaukee, WI 53211, USA

### **Prof. Dr. Yong Zhang**

Beijing Advanced Innovation  
Center of Materials Genome  
Engineering, State Key  
Laboratory for Advanced Metals  
and Materials, University of  
Science and Technology Beijing,  
30 Xueyuan Road, Beijing 100083,  
China

## Message from the Editorial Board

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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Metals Editorial Office  
MDPI, St. Alban-Anlage 26  
4052 Basel, Switzerland

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