
Editorial

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Biographical notes: Janez Grum is a Professor of Materials Science at the Faculty of Mechanical Engineering, University of Ljubljana, Slovenia. He is also the Founder and Editor-in-Chief of a new journal, the *International Journal of Microstructure and Materials Properties (IJMMP)*. He is the editor of six NDT conference proceedings, five ASM, Marcel Dekker and Taylor & Francis book chapters and five books with several reprints. He has also published more than 200 refereed journal papers on heat treatment and surface engineering, laser materials processing and materials testing, including non-destructive testing.

The present issue of the *International Journal of Microstructure and Materials Properties* comprises six papers discussing investigations conducted on various fields of materials and materials properties.

The following authors contributed their papers discussing topics such as:

- Farajian et al. study relaxation of welding residual stresses under quasi-static loading and under cyclic loading. The influence of welding residual stress on fatigue performance depends strongly on how stable these stresses are during cyclic loading. If the tensile residual stresses at the fatigue crack initiation sites, e.g., weld toe relax, their influence on service life decreases and if on the other hand they stay stable after certain numbers of load cycles their influence on fatigue life assessments should be taken into consideration. The relaxation of residual stresses under cyclic loading (constant amplitude) is most considerable during the very first load cycle. The initial reduction of residual stresses could be considered as relaxation under quasi-static loading. It was shown that the classical von Mises failure criterion is able to describe the relaxation mechanisms in welded specimens under quasi-static tensile or compressive loading. By increasing the tensile load a continuous relaxation of residual stresses occurs and under compression the relaxation sets in with delay which is an evidence of stability of tensile residual stresses. Surface residual stresses were investigated by means of X-ray diffraction.
- Seemikeri et al. discuss improvements in surface integrity and fatigue life of low plasticity burnished surfaces. The research included full factorial experiments on steels AISI 1045 and AISI 316L using a newly designed low plasticity burnishing tool to evaluate the effect of treating conditions parameters on the fatigue life. Optimum levels of parameters for maximum fatigue life have been determined.

- Pázmán et al. present Al-Ni phases in Al/SiC(Ni)_p composites. In order to improve the interfacial bond, the surface coating of the ceramic particles is used. By using the electroless nickel plated SiC particles in the Al/SiC composites.
- Asmelash and Mamat study processing conditions and characterisation of Al₂O₃-SiO₂-ZrO₂ composite material. An oxide ceramic-based composite of Al₂O₃-SiO₂-ZrO₂ system was developed and investigated using a pressureless sintering route. The effect of compositions of each component on the density microstructure, and hardness properties were studied. The results showed that with varying ZrO₂ content and keeping the silica content constant and the alumina as a matrix tends to decrease. The results reveal that the hardness was from 10–12.5 GPa.
- Elansezhian et al. study characterisation and influence on adhesion and coating thickness of electroless Ni-P deposits. Electroless nickel-phosphorus (EN) deposits were made on mild steel substrates. The crystallite size of nickel can vary from 200 nm in the as deposited condition to 80 nm. The paper reveals a nano crystalline structure of the deposit in as plated condition and an amorphous structure. With addition of surfactants adhesion was good.

Papers were selected among spontaneously received papers. All papers have been reviewed according to journal procedures and standards. I sincerely thank to all authors for their valuable contributions and having observed all reviewers comments and suggestions.

We sincerely hope that the papers published will be a useful source of information for engineers and researchers at their professional work.