
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 *Int. Journal of Microstructure and Materials Properties* comprises 6 papers which were submitted and reviewed through the online submission system.

The following papers have been included in this issue:

Mahboobeh Azadi researched the effect of number of layers on the toughness of TiN/TiC multilayer coatings on H13 hot work tool steel. All coatings were deposited by the pulsed-DC plasma assisted chemical vapour deposition. The objective of this paper was to determine mechanical properties such as the hardness, the elastic modulus, and the toughness of different coatings. Increasing the number of layers in multilayer coatings increased the elastic modulus, the hardness and the toughness with respect to the single-layer coatings.

Chalisgaonkar et al. investigated microstructural characteristics of pure titanium by wire electrical discharge machining. Experimentation was conducted as per Taguchi's L27 orthogonal array for investigating the influence of process parameters such as pulse on time, pulse off time, peak current, wire feed, wire tension, and servo voltage on surface integrity of the titanium. It was observed that changing the discharge energy level through systematic variation of wire electrical discharge machining process parameters resulted in significant variation in the surface characteristics, such as craters, cracks, debris, recast layer and spherical deposits and the material migration from wire and inter-metallic compounds. A mechanistic model was also developed for prediction of recast layer thickness over a range of input parameters related to the process.

Arun et al. discussed influence of thickness and notch size on eccentrically loaded single edge notch aluminium plates. The results showed that the failure of eccentrically loaded edge notch specimens is a typical combination of tensile and bending loads. It was also seen that age hardening reduced the load carrying capacity of the plates. The fractographic analysis was made to identify the nature of failure as a function of plate thickness, notch size and the material conditions.

Pleshivtseva et al. presented multi-objective optimisation of induction heaters design based on numerical coupled field analysis. The multi-objective optimisation problem was mathematically formulated in terms of the most important optimisation criteria, e.g., temperature uniformity and energy efficiency. Optimisation procedures were tested and investigated for induction heating of a graphite disk and an aluminium cylindrical billet. The developed optimisation procedures were applied to the wide range.

He presented luminescence of Sm-doped CaMoO_4 phosphors prepared by sol-gel process. This study aimed on the effect of calcination temperature on the photoluminescence property of the Sm-doped CoMoO_4 to develop new white phosphors for the application in white light emitting diodes by controlling preparation temperature. Experimental results indicated that the matrices of the phosphors and Sm cation in the phosphors show a blue-green and red emissions, respectively, and their intensities changed inversely with the calcination temperature. The luminescence variation was discussed on the basis of microstructural characterisations.

Bai et al. investigated the effect of anion $\text{NO}_3^-/\text{SO}_4^{2-}/\text{F}^-$ on the optical performance and chroma index of glass coloured by cobalt. The analysis of spectrum transmittance and chroma index was carried out on the plates of the blue glass by spectrophotometer. Results indicated that the optical performance and chroma index of this blue melted glass are largely depended on the factors such as nitrate ion, sulphate ion and fluorine ion.

All papers have been reviewed according to journal procedures and standards. We sincerely thank all authors for their valuable contributions and having observed all reviewers comments and suggestions. My thanks also go to all reviewers for their effort in reviewing papers. Our great thanks are due also to our co-worker Mr. Franc Ravnik, BSc, who took care of the coordination among the reviewers and the authors and prepared the papers for publication.

We sincerely hope that the papers published will be a useful source of information for engineers and researchers at their professional work in fields of toolmaking, material processing and production technologies.