Editorial

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Biographical notes: Ford Lumban Gaol received his BSc in Mathematics, Master of Computer Science and Doctoral degree in Computer Science from the University of Indonesia, Indonesia in 1997, 2001 and 2009, respectively. He is currently an Associate Professor Informatics Engineering and Information System, Bina Nusantara University (http://www.binus.ac.id). He is the Chair of PhD programme and Research Interest Group Leader Advance System in Computational Intelligence & Knowledge Engineering (IntelSys) Bina Nusantara University. He is the Vice Chair of IEEE Indonesia section for international and professional activities. He is the Chair SERSC: Science & Engineering Research Support Society Indonesia Section. He is involved with some projects related to Technology Alignment in some multinational company such as Astra, United Tractors, Telkom, and Sony Erickson. He is the recipient of IEEE Visiting Professor to Hong Kong University in 2011.

Nanotechnology become the major role in the industry and society. It has attracted much attention from many researchers lately.

One of the most interesting things about nanotechnology is that the properties of many materials change when the size scale of their dimensions approaches nanometers. Materials scientists work to understand those property changes and utilise them in the processing and manufacture of materials at the nanoscale. The field of materials science covers the discovery, characterisation, properties, and end-use of nanoscale materials.

The paper 'Preparation of nanostructures $LaPO_4$ films by sol-gel reaction with different annealing temperature' provide a depth discussion about thin films of lanthanum phosphate ($LaPO_4$) nanostructures that were fabricated on quartz substrate using sol-gel spin coating method subsequent with drying and annealing process. Increase of annealing temperature will increase the intensity of diffraction peaks; reveal that the particle size and crystalline increase with temperature. A monoclinic structure was shown to be present in $LaPO_4$ thin films after first anneal at 200°C. The $LaPO_4$ nanostructures of average size 30–50 nm were observed with field emission scanning electron microscopy. While the crystallise size were measured with X-ray diffraction (XRD). The images of $LaPO_4$ nanostructure films show uniformity of samples with homogenously close-packed morphology.

The paper 'Critical process and performance parameters of thermal arc spray coating' comprehensive and depth discussion about critical part of thermal arc spray coating by discussing the process parameter of thermal arc spray technology and quality control of coating. Comparison between coating material usage was reviewed to determine the best applied material coating in certain critical environment. Coating performance against

corrosion, wear and special characteristic of coating are discussed. The field application of arc spray technology is presented.

The paper 'Effect of strain rate on tensile and work hardening properties for Al-Zn magnesium alloys' explore in depth about the effect of strain rate on the mechanical behaviour of Al-Zn magnesium alloys was examined at room temperature under tensile loading with wide range of strain rate. Quasi static tensile test was performed in four different strain rates to obtained their effect on tensile properties, work hardening rate, strain hardening exponent and strength coefficient using a round shape tensile sample. Two types of Al-Zn magnesium alloys were used in this research study i.e. AZ31 and AZ61 magnesium alloys. The yield stress and tensile strength of AZ31 were found to be strain rate dependent but not for AZ61. The elongations of AZ31 were approximately about 15% for all strain rate levels but for AZ61 the elongations were slightly decreased with increasing strain rate.

The paper 'Nanoindentation and microstructure of hybrid treated of AISI 316L at low temperature' provide a depth discussion about the characterisation of hybrid treated layer on austenitic AISI 316L stainless steels using field emission scanning electron microscope (FESEM), universal scanning probe microscope (USPM) and nanoindentation after low temperature thermochemical treatments. By using these methods, the improvement of its mechanical properties due to the diffusion of carbon and nitrogen at low temperature treatments were confirmed. The hybrid treated layer has shown increment of hardness and elastic modulus compared to untreated sample. Based on the investigation, it is shown that all treated samples have enhances E/H ratio which demonstrated the decreasing tendency to plastic deformation and reduced the disparity of properties, while keeping deformation within the elastic range.

We wish to thank all the authors for their great work and for submitting their papers. Special thanks go to all reviewers who helped with the reviews of the papers and to Professor J. Paulo Davim, for his excellent support and advice.

We hope that this special issue will represent a significant source of reference for future researches in the ubiquitous computing area.