Editorial

Spectroscopy Applied to Engineering Materials

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For this special issue, we received 29 papers. Finally, 14 papers were selected for publication and more than 50% of the papers were rejected.

It is well known that engineering materials were always important tools in the technological development mainly due to their physical/chemical and mechanical properties in a wide range of applications such as machinery, vehicles, ships, construction, energy instrumentation, and aerospace. It is necessary to use spectroscopes analysis to study structure in engineering materials.

Within the published papers, various engineering materials were introduced such as lithium secondary batteries, hydrogen sensing materials, polymeric composites, high-TC superconductor, cellulose film, carbon nanomaterial, and chitosan. In particular, most spectroscopes analysis methods were applied for the characterization of engineering materials including fluorescence spectroscopy, atomic force microscopy, diode laser-based photoacoustic spectroscopy, polarized micro-Raman spectroscopy, and Raman imaging.

Z. Xie and W. Guan reported three-dimensional fluorescence and infrared spectroscopy analysis of the leachate dissolved organic matter (DOM) of the Three Gorges in spring, summer, and autumn seasons, respectively. Experimental results indicated that three-dimensional fluorescence spectra of the landfill leachate varied with rubbish stacking time. They also reported that the longer the waste stacking

time, the lower the protein in leachate concentration and the higher the fulvic-like acid concentration.

Y.-S. Kim and S.-K. Jeong investigated the electrochemical processes occurring at the surface of a highly ordered pyrolytic graphite electrode by *in situ* atomic force microscopy (AFM). Their results provided the direct and obvious evidence that solvent cointercalation reaction occurred at the initial stage of the surface film formation.

X. Chen et al. used polarized micro-Raman spectroscopy as a powerful tool to map out the molecular orientation of a uniaxially oriented polypropylene-based composite material. Micro-Raman analysis at the surface region was found to demonstrate the surface orientation relaxation and provide an effective way to correlate the extent of relaxation and process conditions. J. L. González-Solís et al. also explored the chemical structure of $\text{TlBa}_2\text{Ca}_2\text{Cu}_3\text{O}_9$ high-TC superconductor films with Tl-1223 phase to monitor spectral map changes from normal state to superconducting state using the technique of Raman imaging, which provided the spatial distribution of the various molecular species within a sample. They reported that this is the first report of preliminary results evaluating the usefulness of Raman imaging in the determination of transition temperature of $\text{TlBa}_2\text{Ca}_2\text{Cu}_3\text{O}_9$ high-TC superconductor films with Tl-1223 phase.

This issue provided the recent development of advanced spectroscopic characterizations for engineering materials.

Our expectation is that more attentions will be paid to the research of engineering materials.

Acknowledgments

The editors would like to take advantage of this opportunity to express their sincere thanks to the authors. They would like to thank them for submitting their best papers to this issue. Then, they also apologize for the long time of the review process. For example, it took 115 days to review E. Zumelzu et al.'s paper. Finally, the lead guest editor expresses his/her sincere gratitude to the editor team as it is not easy for them to assign the article to a reviewer.

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