# Foreword

This volume contains papers presented at the 5th International Conference on Electrophoretic Deposition: Fundamentals and Applications, held on October 5-10, 2014, at Schloss Hernstein, Austria, under the sponsorship of Engineering Conferences International (ECI).

The conference attracted over 65 contributed talks and 22 posters from participants hailing from 25 countries. Contributions covered a large number of subject areas related to EPD, reflecting the impressive and ever growing versatility of the EPD technique as a materials processing method. The topics ranged from theoretical studies on the fundamental mechanisms of EPD to novel techniques in EPD for efficient and cost-effective fabrication of a variety of advanced (nano)materials. The program was organized in 13 technical sessions, 2 poster sessions, 1 student-focused session, and a final round table discussion. The papers included in this volume address a variety of topics that document the successful application of EPD in the synthesis of engineering materials and components, including freestanding and layered ceramic films, composite coatings on metallic substrates, nanostructured composites and films, microelectronic substrates, carbon nanotube and bioactive coatings, functional materials, piezoelectric devices and sensors, among others. The application of EPD for the manufacture of nanoparticle heterostructures and densely-packed, nanostructured functional films also was presented in some of the included papers. Moreover, manuscripts evidencing the relevance of colloidal chemistry both on determining electrokinetics and on the deposition process itself were featured. Other contributions demonstrated the integration of EPD in novel separation, production and manufacturing technologies, including novel additive manufacturing approaches. Reports on innovative EPD techniques employing high dc electric fields, coupled electric and magnetic fields and pulsed electric fields to produce novel (nano)materials, as well as EPD assisted by ultrasound, were included in this volume.

The 5th edition of the EPD conference confirmed the high potential of EPD as a versatile method for (nano)materials processing. Further challenges for the expansion of the EPD applications, in particular dealing with fundamental understanding of suspension stability mechanisms as well as the EPD process itself, with all the variables affecting its successful realisation, will require further studies connecting electrochemistry and materials science expertise. This is precisely the forum that the EPD conference series offers. Indeed, the 2014 conference in Austria was the largest of the series so far, attracting most of the experts in the field worldwide. The present volume constitutes a valuable source of information and a timely snapshot of the current state of the art in EPD worldwide.

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