

PAPER • OPEN ACCESS

Preface

To cite this article: 2019 *J. Phys.: Conf. Ser.* **1322** 011001

View the [article online](#) for updates and enhancements.



IOP | ebooks™

Bringing you innovative digital publishing with leading voices to create your essential collection of books in STEM research.

Start exploring the collection - download the first chapter of every title for free.

Preface

It is our pleasure and honour to introduce this prestigious publication – The Proceedings of the Institute of Physics International Conferences Electrostatics 2019 and Dielectrics 2019. The conferences were organised by the Dielectrics & Electrostatics Group of the Institute of Physics, and for the first time were co-located in the historic city of Manchester, UK from 8th to 12th April 2019. Electrostatics 2019 was the 15th conference in the series since its inauguration 66 years ago. The conference has been held at many venues around the UK, but this was the first time in Manchester. We are proud to say that it was something of a home coming for electrostatics as two of the founders of the Electrostatics Group, then known as the Static Electrification Group, were based in Manchester: Dr N Gibson and Dr P S H Henry. This year also marks the 46th Anniversary of the Dielectrics Group, which is now part of the Dielectrics & Electrostatics Group, and was formerly the Dielectrics Society.

Manchester is the second largest city in Great Britain. The city is also home to many discoveries. The luxury car company Rolls-Royce was first established in Manchester in 1904. In the late 1940's, professors at Manchester University developed the first computer that had a stored programme and memory. More recently, graphene, also known as a wonder material, was first extracted by two professors at Manchester University: Sir Andre Geim and Sir Kostya Novoselov, for which they were awarded the Noble prize in Physics in 2010. The world's first intercity railway was designed and built by the great George Stephenson was opened in 1830, operating between Manchester and Liverpool. Manchester is also famous for its cotton industry and was even known as Cottonopolis in the 19th century.

Electrostatics 2019 spanned across four days and included fifteen oral presentation sessions and three poster presentation sessions. The final two sessions of Electrostatics 2019 were joint sessions forming the first two sessions of Dielectrics 2019, which continued into the fifth day with a total of seven oral presentation sessions and one poster presentation session. The conferences were truly international with delegates attending from across the globe: Australia, Austria, Belgium, Canada, Czech Republic, Finland, France, Germany, Hong Kong, Hungary, India, Ireland, Japan, South Korea, Lebanon, Mexico, Poland, Portugal, Qatar, Spain, Sweden, Switzerland, Tunisia, USA and, of course, United Kingdom. There was also a balanced representation between academic/research institutions (~60%) and industry (~40%), which was an added highlight of the conference. There were a significant number of research students attending and presenting their work, which was really an exciting benefit as students will be our future scientists/professors/CEO's. There were also exhibitors, who were very active and lively in engaging with the delegates.

The conference session themes were selected to align with the scope of both conferences, with an international panel of session chairs to introduce speakers and conduct lively questions and answers. The question and answers were recorded, and transcripts of the recording have been included in this publication.

The conference chair, Dr Nicolas Green (University of Southampton), delivered the welcome address to kick start Electrostatics 2019. The first talk was the prestigious Bill Bright Memorial invited lecture, which was delivered by Prof. Geoffrey Mitchell from Polytechnic Institute of Leiria, Portugal, on the topic entitled "Electrospinning: principles, practice and possibilities". There were five other invited talks delivered by highly acclaimed academics/scientists, and the conference delegates had opportunity to talk to these invited delegates during the networking breaks and social events.

Best oral presentation and best poster presentation prizes for early-career researchers were awarded respectively to Fahad Chowdhury (University of Ottawa) for "Experimental study of collisional charge transfer between particles for the development of a CFD model on electrostatic effects in gas-solid flows" and to Abigail Miller (University of Nottingham) for "Stability of charged nanoclusters: a case of fullerenes and polyoxometalates".

Electrostatics was concluded by the conference chair at the end of the first joint session, and Dr Sillas Hadjiloucas (University of Reading) took over baton as conference chair for Dielectrics 2019. The fascinating plenary lecture was delivered by Prof. Regina Dittman of Forschungszentrum Jülich, Germany, and was titled "Oxide based memristive devices: current status of understanding and future prospects". Other speakers in the conference presented the latest advances in dielectric



measurements and imaging, in the microstructure, chemistry and characterization of composite dielectrics, in the manufacturing of complex dielectrics and their applications, and in the interpretation of dielectric responses.

We appreciate and acknowledge the contribution made by our committee members in making Electrostatics 2019 and Dielectrics 2019 very successful events. In particular, a special appreciation is due to Paul Holdstock for his tireless effort and valuable time in organising the venue, reviewing manuscripts, arranging the invited speakers, organising the social event and finally being the editor of these proceedings. We also acknowledge the IOP conference department staff for their administrative support. In particular, we would like to mention Keenda Sisouphanh for her continuous and tireless support in the organising of this event, from the abstract submission to the publishing of these proceedings. Our sincere gratitude is also due to the exhibitors, sponsors and co-sponsors.

Finally, we also extend our sincere thanks to reviewers of manuscripts, without whom these proceedings would not be possible, and to the invited speakers, speakers and poster presenters for their brilliant and intriguing presentations.

We firmly believe that Electrostatics 2019 and Dielectrics 2019 achieved their aims and continued the fine tradition of these conference series in benefiting all the participants in many different ways.

Dr N Manivannan (Brunel University London)
Programme Chair, Electrostatics 2019

Dr S Hadjiloucas (University of Reading)
Conference & Programme Chair, Dielectrics 2019