



Aerosol Technology 2018 Conference, 18th – 20th June 2018, Bilbao, Spain

Florence Gregson, supervised by Prof. Jonathan Reid

Department of Chemistry, University of Bristol

I was delighted to attend the Aerosol Technology (AT2018) conference, which took place in sunny Bilbao in Northern Spain. The conference topics were across a wide range of fields, from sampling and emissions to advances in aerosol modelling, functional particle synthesis via aerosol methods and novel instrumentation. Hour-long plenary talks took place each day, as well as both morning and afternoon parallel sessions and poster sessions. I really enjoyed the breadth of the research being demonstrated and I attended a large variety of talks on fascinating topics. During the four plenary sessions the speakers were able to go into a large amount of detail on their field and I came away with a much greater understanding on the topics of differential mobility analysis (Prof. Richard Flagan), high-resolution tandem mobility analysis (Prof. Juan de la Mora), aerosol-assisted nanoprining (Prof. Mansoo Choi) and functional nanomaterial synthesis (Dr. Hartmut Wiggers). In the parallel sessions, I attended many talks on instrumentation and characterisation, and enjoyed hearing talks on new developments in imaging diagnostics for combustion species in engines, measuring hygroscopicity of atmospherically relevant aerosol and on personal bioaerosol sampling, to name a few. I found talks on emissions, health and bioaerosols particularly interesting, such as lung deposition modelling, occupational exposures to nanoparticles and dispersions of nanocluster aerosol.

I presented during the parallel session “aerosol processes” on Tuesday 19th June, and my talk was entitled “predicting crystallisation in evaporating aerosol droplets”. I presented the experimental results I have collected during the first two years of my PhD on observations of homogeneous nucleation in micron-sized aerosol droplets containing inorganic solutions, as they evaporate in different conditions. I also discussed the model that we have developed for these results. My work is applicable to the field of spray-drying, wherein aerosolised formulation droplets evaporate rapidly to form powdered products for a range of applications. We are trying to develop a greater understanding of how morphology evolves in a drying droplet, and crystallisation is an important step in this process.

After my talk I was asked interesting questions about my crystallisation trends, and the models I have applied to the data, and I had very helpful feedback about my work. In the next few months I will focus some time on statistical observations of crystallisation, as suggested during the Q&A part of my talk. The discussions during this sessions continued into the coffee break where I had very useful conversations with other scientists in the field, and I feel positive about the future collaborations that will result from this meeting.

Overall, this conference was hugely interesting as well as very useful for my PhD studies. I have experienced the large breadth of aerosol research being carried out world-wide, as well as identifying other topics that relate to my work and I have had valuable conversations with potential future collaborators. I would like to thank the Aerosol Society for the generous support with the Early-Career Scientist Travel Award, which enabled me to attend the AT2018 conference.