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Title: Plastic air pollution – what do we know?

Abstract: Micro- and nanoscopic plastic debris ('microplastic'), originating through the degradation of plastic materials, is ubiquitous in the environment. Laboratory studies indicate that exposure to high levels of microplastic can negatively impact biota following exposure, primarily via oxidative stress and metabolic disruption. Recently, microplastic has been reported in atmospheric deposition and airmasses around the globe, suggesting a complex network of environmental pathways before it reaches its environmental – or biological – fate. Furthermore, the discovery of microplastic in ambient and indoor air has raised concern for public exposure via inhalation and potential impacts on health. However, there are critical physicochemical factors which govern the fate and effects of inhaled microplastic material in the body. Very little is known about atmospheric microplastic pollution, and this is partly due to the analytical challenge they present.

In this talk, I will give an overview of the progress in plastic aerosol research. I will present my Team's research, from early environmental measurements to analytical and data science advances. It will highlight knowledge gaps and recommend key research areas. As plastic production and use continues to grow, it is timely to establish baseline knowledge of global airborne microplastic burdens and to begin to understand if and what their potential role in disease pathways might be.

Bio: Dr Stephanie Wright is a Rutherford Fellow and Lecturer in Environmental Toxicology in the Medical Research Council Centre for Environment and Health, Imperial College London. She completed a B.Sc Hons 1.1 (Newcastle University), then a PhD in Biosciences at the University of Exeter (2015), which focused on the toxicity of microplastics in the marine environment. Through two fellowships, she has established her field in microplastics and human health. Specifically, Dr Wright's team advances analytical and data science approaches to quantify external and internal micro- and nanoplastic exposure, in complement to assessing their adverse outcomes *in vitro*. She has participated in working groups for the World Health Organisation and the European Commission and is on the editorial board for the journal *Microplastics and Nanoplastics* (Springer).