THE UNIVERSITY of EDINBURGH
School of Engineering

IMP seminar

13:00-14:00 on **16th Aug**

Sanderson Classroom 3

Driving Sustainability in the Biopharmaceutical Industry

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ABSTRACT

The concept of sustainability has been ubiquitous in many industry sectors such as aerospace, automotive and consumer goods. A typical example we can find in our daily life is shampoo bottles made from recycled plastics. However, it is challenging for sustainability to find its inroads into the biopharmaceutical industry where single-use plastic products and solutions have always been dominant due to stringent regulations and medical requirements. It is also reflected in the COVID-19 pandemic, during which the rapid deployment of single-use biomanufacturing technologies made accelerated vaccine rollouts possible. However, we should always be mindful of the environmental impact of our activities. On the other hand, research also showed that single-use solutions helped to achieve sustainability as compared to multi-use solutions where machines are intensively and repeatably washed, sterilised and irradiated, requiring extensive use of clean water, leading to high consumption of energy and contaminated water.

In Sartorius, we consider the following four core sustainability themes including climate action, water use efficiency, materials & circularity, and partnerships. This seminar will present the sustainability activities undertaken within Sartorius, ranging from multi-disciplinary research, material recycling, product design and innovation, through sustainable production to quality control.

SPEAKER

Dr Zicheng Zhu is an additive manufacturing (AM) specialist at Sartorius, a world leading biopharmaceutical company headquartered in Germany. His role is focused on two major parts – innovation and implementation of AM processes. This involves developing and optimising existing AM processes for series production, investigating and assessing emerging technologies to enhance production capability, and implementing new AM techniques into production in a sustainable and economically viable way. Before joining Sartorius, Zicheng was a research engineer and associate at different academic and research institutes in the UK, China and Singapore, working on polymer and metal AM processes, product design and optimisation, and metrology. Zicheng is the author of over 40 journal and conference articles and also has extensive experience in industry-oriented research. He has worked as the industry investigator and partner for a number of Innovate UK, EPSRC, HVM Catapult and EU Horizon funded projects, investigating sustainability, new commercial material development, process innovation and capability development, design for AM and inspection.