Smarter Sorting for a Circular Future: The Role of AI and Data in Feedstock Identification for Textile Recycling

With only 1% of global textiles currently being recycled, the fibre-to-fibre recycling industry faces urgent and complex challenges. At the heart of the problem lies the difficulty in accurately identifying and separating textile waste by materials, exacerbated by the often uncertain origins and unlabelled fibre blend compositions of even post-industrial textile waste. This not only reduces the quality of recycled fibres but also increases processing costs and hinder circularity.

This talk will explore how small-scale, AI-powered sensing technologies, especially Near-Infrared (NIR) fibre identification scanners, are enabling big changes across the recycling chain, from classrooms to industrial recycling facilities. I will highlight how effective pre-sorting is now more crucial than ever in managing contamination, improving feedstock purity, and producing higher-value recycled outputs. With increasing global demand for recycled textiles and plastics, and a legislative push for Extended Producer Responsibility (EPR), precision in early-stage sorting is no longer optional - it's essential.

By integrating smarter, faster, and more accurate detection systems, supported by Cloud-connected data traceability, we can overcome the limitations of guess-work sorting and move towards a more scalable and sustainable textile recycling ecosystem. Attendees will gain insight into the hidden challenges of feedstock sourcing, the transformative potential of compact spectroscopic technology, and how EPR is driving innovations in pre-sorting for recycling today.