E-Textiles for PPE and Workwear
Workshop Agenda

Manchester Metropolitan University, 11th September 2024
Benzie Building BZ403, Higher Chatham Street, Manchester,
M15 6ED

9.30	Registration & coffee
10.00	Welcome and Introduction – Prof. Steve Beeby (University of Southampton
10.10	**Is NHS PPE - fit for the 21st Century?** - Paul Chivers, PCC Sustainable Solutions Ltd *A look at what PPE was available in the pandemic for healthcare workers, and what is available now, including its suitability and fit-for-purpose.* *A look at what would be beneficial and what could be possible in the future of PPE. This includes testing, regulatory standards as well as procurement, behavioural changes, and end of life treatment, including tracking in use.*
10.35	**The role of wearable vital signs monitoring to improve the care of patients** - Dr Anthony Wilson, Manchester University NHS Foundation Trust *This talk will present the use of wearables for monitoring the vital signs of patients and will include the findings from clinical trials. Dr Wilson will provide a clinician's perspective on the requirements for the technology and insight into the experience of the patient.*
11.00	Facilitated workshop session: Opportunities for e-textiles technology within PPE/Workwear and the associated research challenges
12.00	Lunch and networking
13.30	**Challenges in engineering PPE for performance** – Prof. Ningtao Mao, University of Leeds *This talk will give a brief introduction of a few PPE performance requirements, and present a review of the challenges in engineering PPE for required performance in both protection and comfort. The possibility of applying e-textile technologies to engineer a solution for the above challenges will be discussed. It is hoped that the talk could facilitate the discussions in identifying problems of existing PPE and workwear products, as well as help stimulate new solutions to the challenges identified.*

13.55	**Vibration sensing textiles for personal protective applications** – Dr Theodore Hughes-Riley, Nottingham Trent University *Over-exposure to vibration entering the hand can lead to serious musculoskeletal, neurological, and vascular injuries. Injury is typically caused by cumulative exposure to vibration and as a result devices that can measure vibration can be useful to ensure that workers are not over-exposed and that adequate protective measures are in place. While some monitoring solutions have been developed to create devices for logging vibration, they can often be bulky or take the measurement away from the site that the vibration enters the body, which is non-optimal. This work presents a glove that has been developed to monitor vibration as it enters the hand, which is a common site for the vibration to enter the body for users of power tools. The glove was created by first embedding small scale accelerometers into the core of yarns (creating electronic yarns), which were then fed into channels within the knitted glove's structure. The performance of the yarns has been evaluated over a range of relevant frequencies and amplitudes. This glove provides a powerful tool for evaluating the vibration exposure of workers.*
14.20	Facilitated workshop session: defining collaborative project proposals with participants grouped by project ideas identified in workshop session 1.
15.20	Wrap-up and next steps
15.30	Tea/Coffee/ Networking
16.30	Close