

Materials

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**A Speed Unmatched by
Other Materials:
Hypersonic Flight
Takes Off in Australia**

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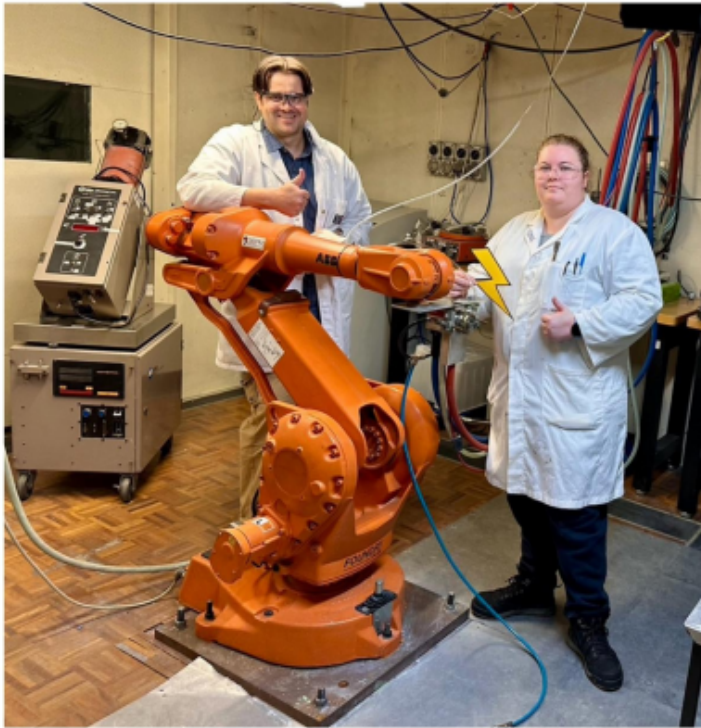
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Profile: Dr Hannah King

Postdoctoral Fellow, SEAM Swinburne University of Technology.



Dr. Hannah King (postdoctoral fellow) and Mr. Ludwig Wedemeyer (PhD candidate) working on the lightning protection project at Swinburne University node of SEAM.

Hannah King is a Postdoctoral Fellow with the Australian Research Council (ARC) Industrial Transformation Training Centre on Surface Engineering for Advanced Materials (SEAM) at Swinburne.

Hannah is an analytical chemist by training, with a PhD in chemistry (2020) from James Cook University in Queensland. Like many young researchers, Hannah was faced with a plethora of unknowns and opportunities once her PhD was completed; Was it best to continue blue sky research? Was it time to move from academia to industry and face real world technical problems? Was research and development (R&D) a viable career option in Australia? Then, lightning struck -literally. Hannah was offered an R&D postdoctoral position working with a wholly Australian

owned company called Lightning Protection International (LPI) on the next generation of lightning strike protection devices (i.e. lightning rods). Funded through the Innovative Manufacturing CRC (IMCRC), Hannah began a postdoc career with the SEAM ARC training centre.

This was the best of all worlds; creative R&D work grounded in a real world problem. Hannah was able to apply her existing chemistry knowledge of materials characterisation to the project, but had to learn quickly the industrial-scale engineering systems which would be used to manufacture the lightning rod prototypes. The LPI project completed in 2022, but Hannah had her foot-in-the-door for real world R&D at SEAM: The LPI project led to another SEAM affiliated Allegra

Orthopaedics project, and that led to Hannah being employed by SEAM as a postdoc for the industrial companies of D&T Hydraulics and Engineering, Titomic, and King's Flair.

While all the projects are rooted in materials engineering, each project has its own specialty. The D&T Hydraulics and Engineering project uses laser cladding to repair and refurbish worn and damaged mechanical parts, the Titomic project is developing machine learning models for optimisation of their cold spray additive manufacturing process, and the King's Flair project is developing bioactive coatings. Hannah works mainly in project management, and collaborates with fellow ECRs and colleagues like Dr Samuel Pinches (another SEAM postdoc) to lead the D&T and Titomic projects. There are currently 6 active PhD candidates working industriously with SEAM's industry partners to solve critical materials science problems. The feedback from the industry partners has been energising, with the university-based R&D solutions being applied to commercial real world products. The work done by Hannah and the team at SEAM keeps young Australian researchers at the frontier of national and international STEM innovation.

Hannah appreciates that as a woman in science and engineering, she is given a greater opportunity to promote her work and have her story told. She understands that there is a unique power in being seen as a woman at the forefront of innovation by both young girls who inspire to a career in STEM, and fellow material scientist/engineers who understand the importance of closing the gender gap. The ARC and SEAM are thanked for providing equal opportunities to women of merit, such as Hannah, and are praised for their strong vision for diversity and inclusion.



For more information about SEAM, please visit www.arcseam.com.au/ or email seam@swinburne.edu.au.