

Additive Manufacturing Across Materials: From Medical Implants to Functional Precious Alloys



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Abstract: Additive manufacturing (AM) has transformed the way materials are designed and engineered, enabling precise control of microstructure, functional customisation, and efficient use of resources beyond the capabilities of traditional processing.

This seminar explores a research journey spanning two distinct yet interconnected areas: the additive manufacturing of biomedical alloys for implants, where design freedom and engineered architectures enhance biological performance, and the additive manufacturing of precious metals, where the same principles are applied to develop platinum-based alloys for high-temperature, catalytic, and space applications.

Through this progression, the seminar highlights how a unified understanding of metallurgy, process optimisation, and functional design can be applied across diverse material systems from biocompatible implants to industrial precious-metal components. Case studies demonstrate how control of microstructure, surface characteristics, and processing parameters can tailor properties for specific performance requirements, showing how additive manufacturing serves as a shared platform linking health, industry, and sustainability.

Biography: Dr Parastoo Jamshidi is the Materials Development Manager at Cooksongold, where she leads innovation in precious-metal alloys and additive manufacturing for biomedical, aerospace, and industrial applications. She was recently appointed as a Royal Academy of Engineering Visiting Professor at Heriot-Watt University. Formerly a Postdoctoral Research Fellow at the University of Birmingham in Advanced Materials Processing, she gained recognition for her work on customised implants, high-performance alloys, and advanced manufacturing technologies.

Date: October 29th 2025

Time: 13:30-14:30

Location: DB1.13