

Mechanical Engineering Seminar Series

May 4th, 2026, 11:00AM

EIS 104

Title: Innovation in Advanced Manufacturing: From Materials Design to Industrial Impact

Dr. Dermot Brabazon

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Abstract: Professor Dermot Brabazon's research focuses on advanced manufacturing technologies, with particular emphasis on additive manufacturing, laser materials processing, and functional materials engineering for biomedical, energy, and sustainable industrial applications. His work integrates process innovation, materials design, digital manufacturing, and in-situ monitoring to improve the performance, reliability, and sustainability of engineered components and devices. Key research themes include metal additive manufacturing, NiTi shape memory alloys, surface engineering, powder characterisation, and smart manufacturing systems. Through interdisciplinary collaboration with academia and industry, his research supports the development of next-generation manufacturing solutions for healthcare, hydrogen technologies, aerospace, and circular economy applications, while advancing innovation, technology transfer, and international research dissemination.

Keywords: *Digital Twin, Additive Manufacturing, Powder Bed Fusion, SMST2026, Advance Manufacturing, Processing*

Bio: Prof. Dermot Brabazon is Director of the Advanced Processing Technology Research Centre at DCU, Director for the Centre for Doctoral Training in Advanced Metallic Systems (RoI), and Deputy-Director of I-Form, the national SFI research centre focused on the development of Advanced Manufacturing technologies. His research is focused on materials and processing technologies, including Additive Manufacturing, Near Net Shaping, and Laser Processing. In recognition of his academic achievements and contributions to development of engineering technologies, Dermot was conferred with the President's Award for Research in 2009, appointed a Fellow of the Institute of Mechanical Engineering in 2015, received Invent Commercialization awards in 2015, 2017, 2018, 2022, and the International AMPT Gold Medal in 2018 for lifetime achievements in materials processing research and education. He was selected as one of the top 100 innovative, influential, and forward-thinking people driving the Photonics industry in 2025. He is listed in the World's top 2 % of scientists over the last few years in the Stanford/Elsevier rankings. Dermot is Editorial Board Member for the journals of *Advances in Materials and Processing Technologies*, *Nanomanufacturing and Nanometrology*, *International Journal of AI for Materials and Design*, *Materials*, and Editor in Chief for the Elsevier *Materials Reference Works Encyclopedia*. Since 2010, Dermot has been appointed to the Board of Directors of ESAFORM (EU Material Forming Society). He has published more than 400 internationally reviewed articles and supervised more than 40 postgraduate and 30 postdoctoral researchers to successful project completion.