INSTITUT POLYTECHNIQUE DE PARIS

# Mechanics Seminar series 2024 – 25

## Made to measure: Designing and optimising 3D printed patient specific stents

**Speaker:** Tríona Lally
**Date:** December 11, 2024 (10 - 11 am)
**Venue:** Amphi 104 (Pole Meca)


### Abstract

In this talk, Prof Lally will show a novel approach to 3D printing bespoke stents to treat aortic coarctation in children. She will show how computational modelling approaches can optimise the design and a combination of metal 3D printing and chemical etching can achieve the patient specific designs required to improve clinical outcomes for children with aortic coarctation.


### About the speaker

Tríona Lally is a Professor in Biomedical Engineering within the Department of Mechanical, Manufacturing & Biomedical Engineering and Director of Industrial Engagement in Trinity College Dublin (TCD). She received her BEng (Mechanical Engineering) and MEng (Biomedical Engineering) degrees from University of Limerick and in 2004 she obtained a PhD from Trinity College Dublin in the area of arterial biomechanics and cardiovascular stenting. Following her Ph.D., she took up a lecturing position in the School of Mechanical & Manufacturing Engineering at Dublin City University and returned to TCD in 2015 as a Professor in Biomedical Engineering. Prof. Lally leads a multidisciplinary research group focused on soft tissue biomechanics, vascular imaging and medical device design. Her goal is to gain critical insights into the role of mechanics in cardiovascular diseases, with particular focus on load induced remodelling and regeneration of arterial tissues at the material and cell level. She aims to develop novel diagnostic techniques for early detection of vascular degeneration and intravascular medical devices for the treatment of vascular disease. She leads collaborative industrial research with leading medical device companies including Boston Scientific, Cerenovus, Stryker and Fire1. She has secured considerable national research funding from Research Ireland and Enterprise Ireland, and was awarded an ERC Starting Grant and PoC grant to advance the use of novel MR imaging sequences for vascular disease diagnosis.