



IP PARIS



LMS Seminar series 2024 – 25

X-ray measurements in understanding mechanics of materials

Speaker: Angkur Shaikeea, University of Cambridge

Date: November 7, 2024

Venue: Amphi 104 (Pole Meca)

Abstract

This talk highlights recent advancements in integrating X-ray measurements with mechanical testing to explore material behaviors in unprecedented detail. First, we demonstrate the use of interrupted X-ray tomography to analyze fracture mechanisms in complex 3D architected solids containing millions of unit cells, providing insights into fracture processes at microstructural levels. This is followed by the observation of anomalous toughening effects in brittle architected solids, revealing unexpected pseudo-toughening phenomena. Additionally, we discuss the discovery of a mobile phase in elastomeric rubber, which has significant implications for the rejuvenation of rubber elasticity. Finally, we showcase laboratory-based X-ray diffraction experiments for measuring elastic strains, offering a detailed understanding of the mechanics of materials under stress. Together, these studies illustrate the transformative role of X-ray techniques in advancing materials engineering.

About the speaker

Dr. Angkur Shaikeea is an Assistant Professor at the University of Cambridge's Engineering Department and a Fellow at Pembroke College. His research focuses on experimental mechanics especially using X-ray techniques. He earned his Ph.D. in Engineering at Cambridge, previously held the Ashby Research Fellowship, and awarded the Lindemann Trust Fellowship at Harvard University. Beyond academia, he enjoys product design, poetry, and photography.

▪ [Google calendar link](#) ▪ [Seminar webpage link](#) ▪