



**Seminar Topic:  
Innovations in Structural Materials through Additive  
Manufacturing**

**Assistant Professor Lai Changquan**

**Abstract**

The advent of Additive Manufacturing techniques in recent years has democratized manufacturing and been a boon to engineers looking to produce small batches of customized parts with a short turnaround time. More than simply enabling rapid prototyping, however, the level of design complexity and control 3D printing offers has spurred a significant re-thinking about porous foam-like materials, leading to the emergence of the field of Architected Materials. In this presentation, some design philosophies for 3D printing of lightweight, stiff and strong structural architected materials will be shared and highlighted through our recent studies.

**Biography**

Dr. Lai received his B. Eng in Mechanical Engineering (NUS) in 2009, M.Eng in Materials Science and Engineering (MIT) in 2010 and Ph.D. in Advanced Materials for Micro- and Nano- Systems (SMA-NUS) in 2014. He then embarked on postdoctoral studies in Biomedical Engineering (NUS, 2015), Biosystems and Micromechanics (SMART, 2016) and Mechanical Metamaterials (ETH Zurich & Caltech, 2016 - 2017). He has been the Temasek Research Fellow and Principal Investigator of the Advanced Materials Design and Synthesis Lab in Temasek Labs@NTU since November 2017. He joined the School of MAE and MSE in NTU in 2021. He is currently working on the development of advanced architected and functional materials using innovative design and manufacturing techniques.

**Wednesday, 18 Aug 2021 || Time: 2:00 pm – 3:00 pm ||**  
**Live streaming via: <https://ntu-sg.zoom.us/j/91723627518>**  
**Meeting ID: 917 2362 7518      Password: 180821**  
**Hosted by: Associate Professor Jason Xu Zhichuan**