

School of Materials Science and Engineering



Seminar Topic:
Bioinspired Microstructures to Design Multifunctional Structural Materials

Assistant Professor Le Ferrand Hortense

Abstract

Hard biomaterials usually serve multiple functions. Consider the simple shell of a gastropod, it evolved to achieve balance during locomotion, protection against predation and dehydration, storage of mineral and anchoring for muscles. The combination of all these functions are realized by a well-defined arrangement of building blocks along with appropriate composition and macroscopic shape. Taking inspiration from the heterogeneous microstructures of biomaterials and by developing the tools to translate them into engineering materials allows us to increase our understanding of microstructure-properties relationships, and ultimately to create new sets of composite materials with unique combinations of properties.

In this seminar, I will present our latest progress towards the fabrication of bioinspired microstructured composites and ceramics and discuss the potential of those materials.

Biography

Dr Le Ferrand Hortense is Assistant Professor at the School of Mechanical and Aerospace Engineering (MAE) and School of Materials Science and Engineering (MSE) at Nanyang Technological University, Singapore. She is also part of the Singapore Centre for 3D Printing (SC3DP). She received a “Diplôme d’Ingénieur” (equivalent to Master of Science and Technology) from ESPCI ParisTech, France in 2012, a Master of Science in Materials from ETH Zürich, Switzerland in 2013 and a PhD degree (with ETH medal) in Materials Science from ETH Zürich, in 2017. After a research visit at Purdue University in the USA in 2017, she joined MSE at NTU and the Centre for Biomimetic Sensor Science (CBSS) under a Fellowship from the Swiss National Science Foundation. She joined NTU as an Assistant Professor in January 2019.

Her research interests are multidisciplinary, covering bioprocesses, chemistry, manufacturing and characterisation. Her work has been award several awards and fellowships, among which the post-doctoral publication prize from the Materials Research Society (USA) and the Materials and Processes award from ETH Zürich (Switzerland) in 2018.

Wednesday, 4 September 2019 || Time: 2:00 – 3:00 pm
Venue: MSE Meeting Room (N4.1-01-28)
Hosted by: Assistant Professor Czarny Bertrand Marcel Stanislas