



Schools of Mechanical & Aerospace Engineering and
Materials Science & Engineering
Singapore-637553

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4-year PhD position:

Additive manufacturing of bioinspired composites using magnetic colloids.

School of Mechanical & Aerospace Engineering, NTU Singapore

We are looking for an outstanding and highly motivated candidate to enrich our research laboratory, in the fields of advanced manufacturing and 3D Printing, bio-mimetic and bio-inspired composites and electrical ceramics. The candidate should have a background in Materials Science, Chemistry or Mechanics and prior laboratory experience. The candidate should also fulfill ALL the admission requirements listed by NTU:

[http://www.mae.ntu.edu.sg/Programmes/ProspectiveStudents/Graduate\(Research\)/Pages/ApplicationAdmission.aspx](http://www.mae.ntu.edu.sg/Programmes/ProspectiveStudents/Graduate(Research)/Pages/ApplicationAdmission.aspx)

We offer a fully funded PhD fellowship with a competitive salary for a 4-year research program at one of the most dynamic university in Asia and in the world, Nanyang Technological University Singapore. Our research group focuses on the design and fabrication of hard and dense composite and ceramic materials and structures able to achieve new combinations of structural and functional properties. The materials and structures to deliver have applications in biomedical, robotics and aerospace industries. For more details, please visit our group website: <https://www.ntu.edu.sg/home/hortense>

About the project: additive manufacturing (AM) is rapidly developing, and so are bioinspired materials. Yet, composites and ceramics that exhibit unusual combinations of mechanical properties are yet to be fabricated and upscaled using AM methods. In the past, we have developed colloidal processes that employed magnetic fields to control the microstructure of materials to mimic the mechanical properties of nacre or the change in shape of the Venus Flytrap. Now, the question relies on out to translate those technologies to AM. The candidate will explore the potential of various AM methods at the Singapore Centre for 3D Printing at NTU, Singapore to fabricate and control high resolution microstructures. Printing methods include stereolithography and ink jet printing, but not only. The project will involve particle modification, theory of magnetic manipulation and physical forces involved.

To apply: send your CV, motivation letter, proof of fulfilling NTU admissions requirements and recommendation letters directly to the PI at: Hortense@ntu.edu.sg.

Only shortlisted candidates will be notified.

Intake August 2020 or January 2021.