

**Research Fellow (Physical Sciences/STEM)  
Nanyang Technological University**

Direct Link: <https://www.AcademicKeys.com/r?job=242289>

Downloaded On: Aug. 21, 2024 10:14pm

Posted Jul. 29, 2024, set to expire May 6, 2025

<b>Job Title</b>	Research Fellow (Physical Sciences/STEM)
<b>Department</b>	School of Physical and Mathematical Sciences
<b>Institution</b>	Nanyang Technological University Singapore, , Singapore
<b>Date Posted</b>	Jul. 29, 2024
<b>Application Deadline</b>	Open until filled
<b>Position Start Date</b>	Available Immediately
<b>Job Categories</b>	Professional Staff
<b>Academic Field(s)</b>	Physics - General Sciences - General
<b>Job Website</b>	<a href="https://ntu.wd3.myworkdayjobs.com/en-US/Careers/details/Research-Fellow--Physical-Sciences-STEM-_R00017956">https://ntu.wd3.myworkdayjobs.com/en-US/Careers/details/Research-Fellow--Physical-Sciences-STEM-_R00017956</a>

**Apply By Email**

**Job Description**

The School of Physical and Mathematical Sciences (SPMS) of NTU is an exciting environment for research. The [Yong research group](#) works on novel problems in biological and statistical physics, ranging from morphological transitions, forms and shapes of things in nature, Monte Carlo simulations, molecular dynamics simulations, stochastic processes, complex networks, etc. Our approach is interdisciplinary, using a confluence of ideas from statistical physics, non-equilibrium physics, differential geometry, topology, elasticity, continuum mechanics, artificial intelligence, to algebraic topology. The PI, Yong Ee Hou, has published many high impact papers on biophysics and related topics, including Science, PNAS, and Phys. Rev. Lett., to name a few.

## Research Fellow (Physical Sciences/STEM) Nanyang Technological University

Direct Link: <https://www.AcademicKeys.com/r?job=242289>

Downloaded On: Aug. 21, 2024 10:14pm

Posted Jul. 29, 2024, set to expire May 6, 2025

Understanding the structure-function relationships of biomolecules is an active area of research due to its fundamental importance in biology, physics, and engineering. Our project will seek to answer fundamental questions such as “what is the shape of a biopolymer?”, “why is a biopolymer shaped the way it is?”, “how is structure related to function?”, and provide new perspectives into the geometry and topology of a biopolymer. The results from the research will provide key insights to understanding the structure-function relationships of biomolecules.

The Yong research group is looking for a highly motivated and qualified Research Fellow with the ambition of producing high quality research that can be published in high impact journals.

The Research Fellow is expected to perform state of the art numerical simulations using computing resources from National Supercomputing Centre (NSCC) Singapore. The incumbent has freedom to design the nature and type of MC/MD simulations.

### Key Responsibilities:

- Utilize recently developed mathematical tools from algebraic topology, combinatorial topology, computational topology, and differential geometry (e.g., Betti numbers, Hodge-Laplacian, discrete Ricci curvature) to characterize and model the shape of biopolymers such as DNA and RNA.
- Develop new simplicial models of biopolymers encoded with molecular and structural information amenable to Monte Carlo (MC) and Molecular Dynamics (MD) simulations.
- Run numerical simulations on National Supercomputing Centre (NSCC) Singapore.

**Research Fellow (Physical Sciences/STEM)  
Nanyang Technological University**

Direct Link: <https://www.AcademicKeys.com/r?job=242289>

Downloaded On: Aug. 21, 2024 10:14pm

Posted Jul. 29, 2024, set to expire May 6, 2025

**Job Requirements:**

- PhD from a reputable university, preferably in physical sciences or STEM related field.
- Good publication track record.
- Strong background in biophysics and statistical mechanics as well as prior experience in numerical simulations (in both MC and MD).
- Expertise in numerical simulations, particularly Monte Carlo simulations and molecular dynamics simulations.
- Ability to code and run simulations on supercomputers.
- Ability to think and work independently and have the aspiration to perform high quality research that can be published in high impact journals.

We regret to inform that only shortlisted candidates will be notified.

**Contact Information**

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

**Contact**

School of Physical and Mathematical Sciences  
Nanyang Technological University  
Singapore

Research Fellow (Physical Sciences/STEM)  
Nanyang Technological University

Direct Link: <https://www.AcademicKeys.com/r?job=242289>

Downloaded On: Aug. 21, 2024 10:14pm

Posted Jul. 29, 2024, set to expire May 6, 2025