

INSTITUTE OF ADVANCED STUDIES

NANYANG
TECHNOLOGICAL
UNIVERSITY

Catalyse high-impact research | Transcend disciplinary boundaries | Expand knowledge & education frontiers

FEATURED ARTICLES

Revealing the Hidden Peacekeepers of the Immune System

2025 Nobel Prize in Physiology/Medicine



What keeps your immune system from turning against you? Explore the groundbreaking discoveries by Professors Mary Brunkow, Fred Ramsdell, and Shimon Sakaguchi, uncovering the body's hidden "peacekeepers" and how they maintain balance, reshaping our understanding of disease immunity and future therapies.

[Read more](#)

Uncertain and Promising: Reflections on AI, Judgement, and Responsibility



Held during Singapore AI Research Week, the IAS Frontiers Conference on Artificial Intelligence brought together world-leading researchers to explore how AI systems operate under real-world constraints. The conference sparked rigorous discussions on the future of intelligent systems and academia's role in shaping next-generation AI innovation.

[Read more](#)

EVENT HIGHLIGHTS

IAS Frontiers Seminars: Quantum Horizons

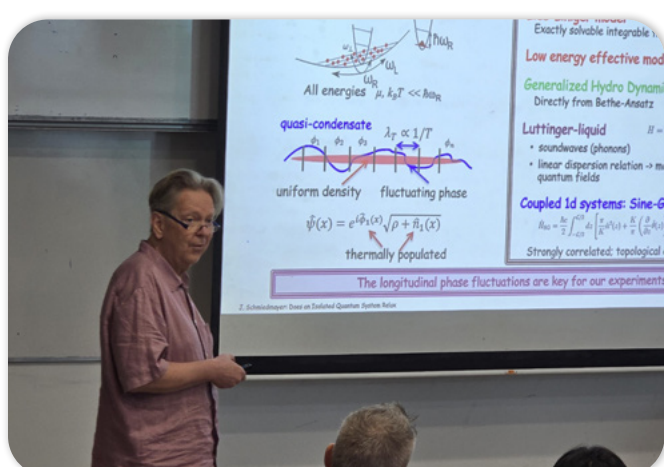
Frustration-Free Many-Body Systems



Prof Haruki Watanabe (University of Tokyo) spotlighted advances in quantum many-body theory, and covered interesting concepts of energy gaps, frustration-free Hamiltonians, and fermionic systems. The seminar aimed to provide a more unified understanding of quantum many-body systems.

[Read more](#)

Does an Isolated Quantum System Relax?



From cooling coffee to ultracold atoms, Prof Jörg Schmiedmayer (Vienna University of Technology) explored whether isolated quantum systems truly relax. Discover surprising findings on prethermalisation, recurrence, and the quantum-classical divide in this engaging seminar.

[Read more](#)

IAS STEM Graduate Colloquia Jointly Organised with the Graduate Students' Clubs

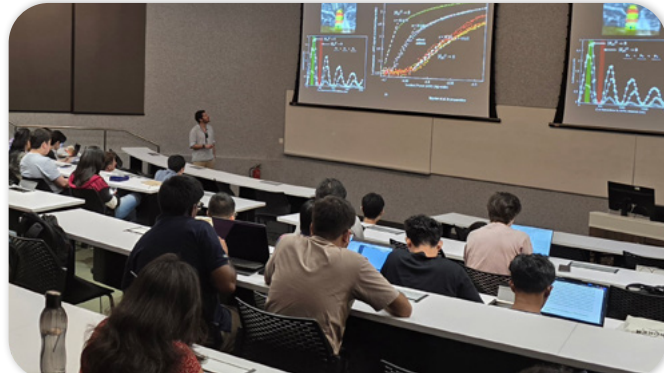
Multi-Agent Systems in the Age of LLMs



Prof Michael Wooldridge (University of Oxford) challenged how we rethink multi-agent systems in the age of large language models, and revealed fresh insights on autonomous agents and emerging complexities shaping AI's future. Discover what happens when intelligent agents begin to truly collaborate.

[Read more](#)

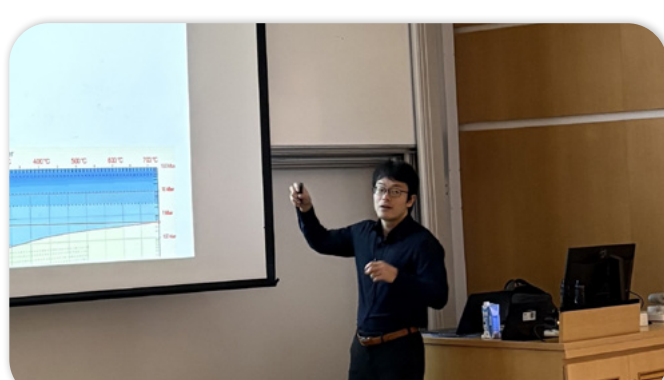
From Electric to Magnetic Optical Fields at the Nanoscale



From electric to magnetic—what if we could fully control light? Prof Mathieu Mivelle (Sorbonne University) revealed how engineering nanoscale structures unlocks all six components of light, opening exciting possibilities in quantum science, sensing, and next-generation photonics.

[Read more](#)

On Landau's Paradigm for the Classification of Phases



Revisiting a cornerstone of physics, Prof Haruki Watanabe (University of Tokyo) probed the power and limits of Landau's symmetry-based framework, revealing how elusive quantum phases and even exotic ice structures challenge our understanding of matter and phase transitions. He explored where today's theories hold and where mysteries remain.

[Read more](#)

On the Metastability of CsPbI₃ Perovskite and How to Tame It



Unlocking next-generation solar tech hinges on a stubborn problem: instability. Dr Julian Steele (University of Queensland) showcased how researchers are tackling the metastability of CsPbI₃ perovskites, and the innovative strategies that could stabilise these promising materials with exceptional light-harvesting potential, for real-world optoelectronic applications.

[Read more](#)

UPCOMING EVENTS

Sensing and Wearable Technologies with 2D Nanomaterials

22 April 2026, SPMS LT5, 2pm

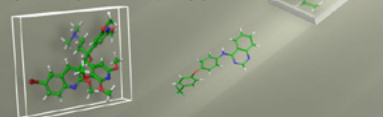
IAS STEM Graduate Colloquium by Dr Otto Lam (University of Exeter)

22 April 2026, SPMS LT5, 2pm

[Register now](#)

4th Annual Symposium Mycobacteria 2026: Translating Biology into Cures

25th - 26th May 2026
School of Biological Sciences
Nanyang Technological University, Singapore



Mycobacteria 2026: Translating Biology into Cures

25 - 26 May 2026, School of Biological Sciences
Classroom 1

[Register now](#)

Prof Hartmut Michel Nobel Prize in Chemistry 1988

IAS@NTU Lee Kong Chian Distinguished Professor Public Lecture

26 May 2026, School of Biological Sciences
Classroom 1, 5pm

"The Challenges in Biomedicine and Agriculture"
by Prof Hartmut Michel

[Register now](#)

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For enquiries, email us at iasevents@ntu.edu.sg

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