



JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY
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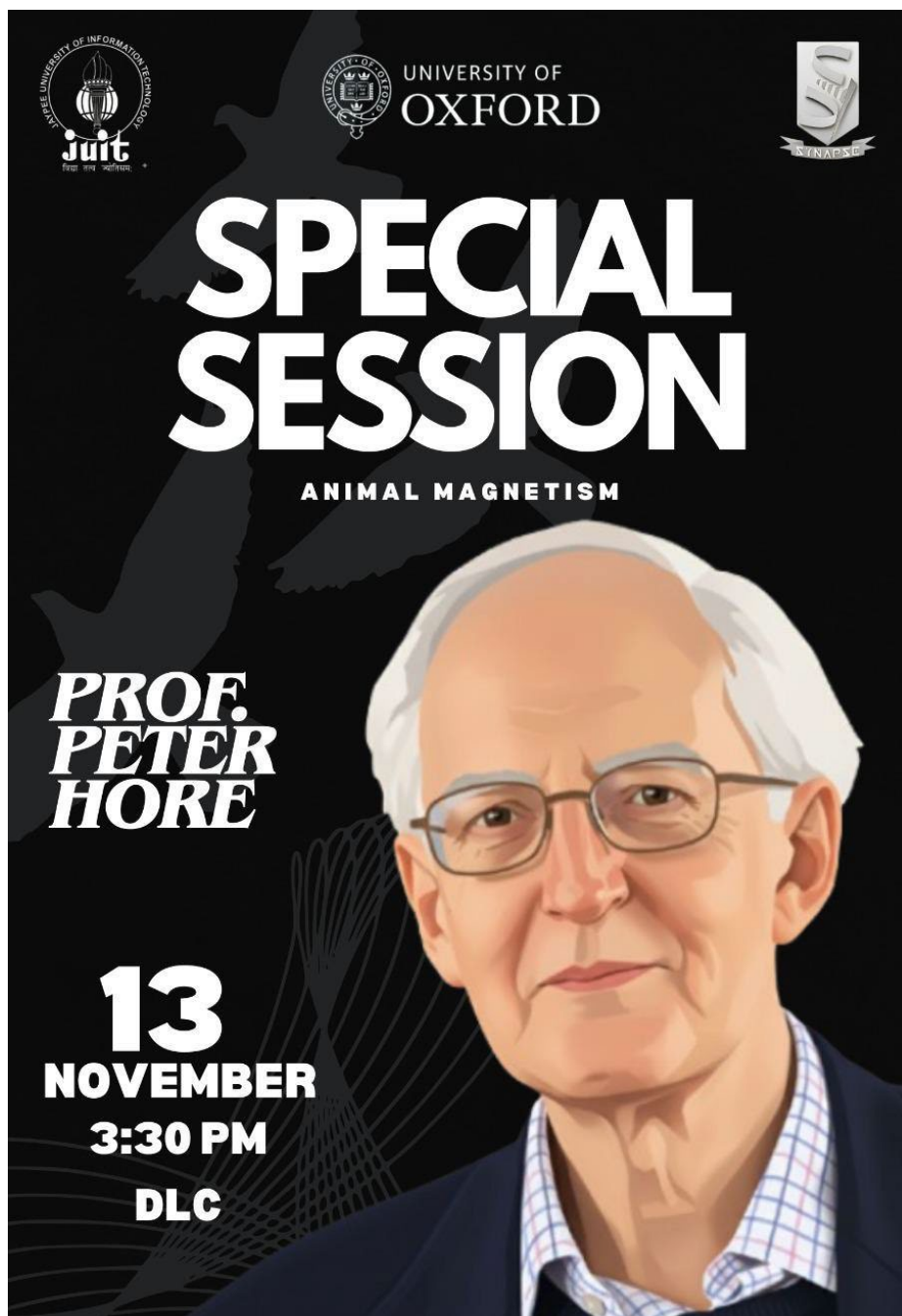


Jaypee University of Information Technology, Wagnaghat, Solan (HP)

Department of Biotechnology and Bioinformatics

Synapse Club-2025

Summary Report of the Special Session by Prof. Peter Hore





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The **Synapse Club of the Department of Biotechnology and Bioinformatics** at Jaypee University of Information Technology (JUIT), Waknaghat, proudly hosted a special online academic session on 13th November 2025, featuring the renowned chemist and Emeritus Fellow from the University of Oxford, **Prof. Peter Hore**. The proceedings, which **commenced at 3:30 PM in the Digital Learning Centre (DLC)**, were skillfully initiated by the program anchors, **Divyanshi Verma and Shriya Sharma**. Following the opening remarks, the esteemed speaker, **Prof. Hore, was formally welcomed by Prof. Hemant Sood**, setting an enthusiastic and intellectual tone for the lecture titled "Animal Magnetism: How do migratory Songbirds Find Their Way?" Prof. Hore's distinguished career has established him as a global authority in Spin Chemistry, the core discipline of his research which investigates how electron and nuclear spins influence chemical reactivity. His foundational work spans critical contributions to NMR methodology, protein structure analysis, and the mechanics of photosynthetic energy conversion, but in recent years, his focus has shifted to solving the deep biological mystery of animal navigation.

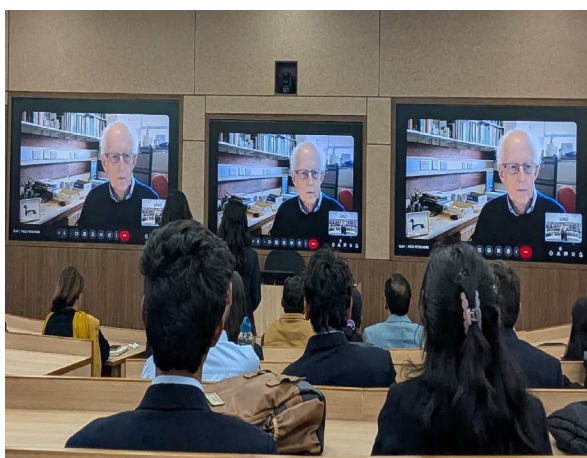


Figure 1: Snapshot from the special lecture by Prof. Peter Hore

The core of Prof. Hore's lecture was a compelling explanation of how animals, particularly migratory songbirds, detect the Earth's extremely weak magnetic field. He introduced the audience to the Quantum Compass concept, arguing persuasively that the biological sensor must rely on a subtle quantum-mechanical process rather than traditional electromagnetic induction. This process is known as the Radical Pair Mechanism (RPM), a fascinating theory contingent upon the formation of short-lived chemical intermediates called radical pairs. These pairs, which possess two unpaired electrons, exist in different quantum spin states (singlet and triplet), and the rate at which they interconvert is acutely sensitive to the direction of an external magnetic field. Prof. Hore demonstrated how the orientation of the Earth's geomagnetic field subtly alters the chemical yield of the reaction, effectively converting magnetic direction into a biochemical signal that the

bird's brain can interpret.

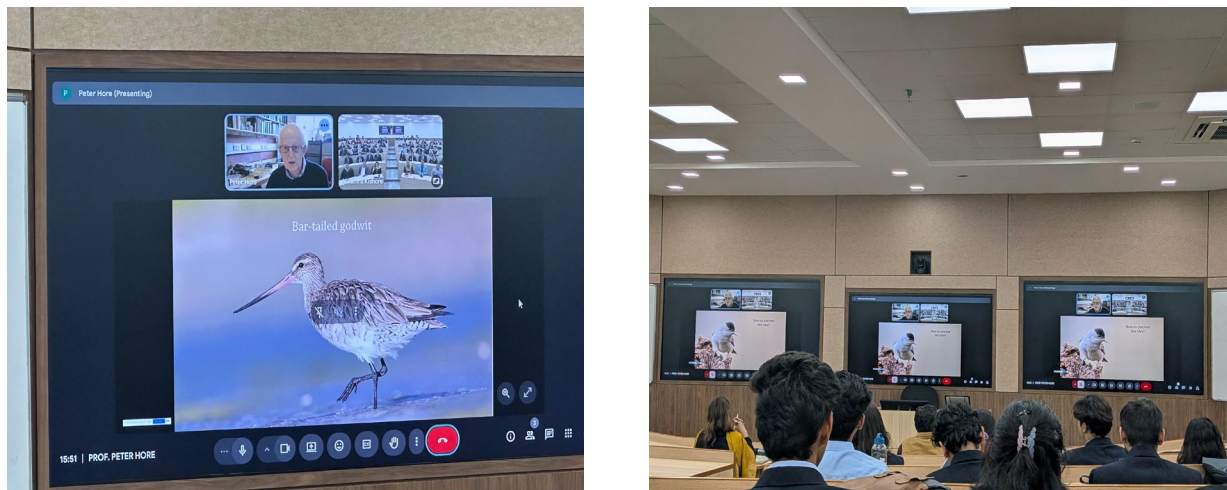


Figure 2: Lecture slide demonstrating the role of magnetic fields in bird navigation.

The event proved highly successful for the Department of Biotechnology and Bioinformatics, showcasing the strength of interdisciplinary research. The blend of physical chemistry and biology provided valuable insights to students from diverse scientific backgrounds. The interactive Q&A session saw active participation from the JUIT community, with questions focused on experimental validation and the broader role of quantum effects in therapeutic and bioengineering fields. Overall, Prof. Peter Hore's session on *Animal Magnetism* offered an enriching academic experience and deepened understanding of one of nature's most intriguing phenomena



Figure 3: Interactive discussion where students clarified doubts.

Acknowledgment

We express our sincere gratitude to **Jaypee University of Information Technology** and the **Department of Biotechnology & Bioinformatics** for providing the platform to organize and document this special academic



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session.

We extend our heartfelt thanks to **Prof. Peter Hore** for delivering an enlightening lecture on “*Animal Magnetism*,” offering valuable insights into the fascinating intersection of physics, chemistry, and biology.

We would also like to thank our **faculty coordinators** for their constant support, guidance, and encouragement throughout the planning and execution of this event.

Finally, we appreciate the efforts of all **student participants and volunteers** whose enthusiasm and cooperation contributed to the successful conduct of the session.