



UNIVERSITY OF MIAMI
DEPARTMENT OF PHYSICS

PHYSICS SEMINAR



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Luc Vinet is the author or co-author of over 300 scientific papers, as well as former rector of the Université de Montréal, Vice-Principal and Provost of McGill University, director of the Centre de Recherches Mathématiques (CRM), and CEO of IVADO.



Monday
9 November
4:00 – 5:00 pm



**Physics
Conference Room**

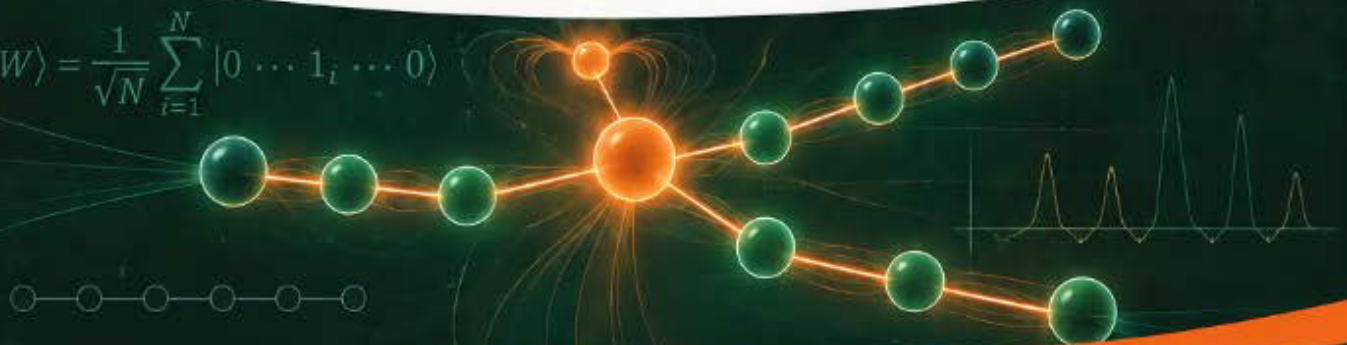
Title:

W states from the free evolution of spin networks

Abstract:

A network of permanently coupled qubits can move and share quantum information by its own evolution, without any external control. Engineered spin chains transfer a qubit perfectly between their ends, or split an excitation between them to produce a Bell state, and both protocols now run on superconducting processors. A W state on three or more distant qubits requires a single excitation to revive on several sites at once. This problem is rigid in a mirror-symmetric chain but simple on a junction of identical chains joined at a hub. There, the symmetry reduces it to the periodicity of two chains, a problem solved in closed form by Hahn polynomials. Exact W states form on three or four ends, and on no more.

$$|W\rangle = \frac{1}{\sqrt{N}} \sum_{i=1}^N |0 \dots 1_i \dots 0\rangle$$



All are welcome!