



Prof. Lieven Vandersypen

**Title: A scalable “Spins-Inside” Quantum Processor and Simulator**

**Abstract:**

Excellent control of over physical 50 qubits has been achieved, but can we also realize 50 fault-tolerant qubits? Quantum bits encoded in the spin state of individual electrons in silicon quantum dot arrays have emerged as a highly promising avenue. In this talk, I will present our vision of a large-scale spin-based quantum processor, and our ongoing work to realize this vision. I will also show how the same platform offers a powerful platform for analog quantum simulation of Fermi-Hubbard physics and quantum magnetism.

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