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Quantum Engineering for electrons and spins

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Tuesday, 1st Mar, 4 p.m.
D202 Seminar room, School of Engineering, 2nd Floor

Abstract: Quantum systems can exhibit peculiar properties quite different from their classical counterparts. The underlying reason for this is the wave-like nature of quantum particles and the resulting interference phenomena. Starting from simple tight-binding models for transport of quantum particles, I will review three recent projects in quasi-one-dimensional systems where we have (i) opened electronic transport channels when there should be none, (ii) split electronic transport into its spin-components by using wave interference and (iii) flipped spins due to interaction with magnetic substrates.

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