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Emerging magnetism in transition metal nanowires ANNA DELIN, Materialvetenskap, KTH, 10044 Stockholm, ERIO TOSATTI, SISSA, via Beirut 2-4, 34014 Trieste, Italy — In this talk, I will present our recent research on magnetism in nanowires of 4d and 5d transition metals (e.g. palladium and platinum). We have used a computational approach based on density functional theory. Magnetism in nanosystems is particularly interesting since magnetic phenomena appear to be very sensitive to the dimensionality of the system. This means that a metal that normally shows no magnetism (not even as a free atom) can be provoked to spin-polarize if it is, for example, grown as a very thin surface, or formed into an extremely thin wire, a so-called nanowire. I will explain why magnetism appears in nanosystems, and how it affects other physical phenomena, particularly the quantized conductance through the nanowire. References: A. Delin, E. Tosatti, and R. Weht, Phys. Rev. Lett. 92, 057201 (2004); A. Delin and E. Tosatti, Phys. Rev. B 68, 144434 (2003).

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