

New excitations in Spintronics



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Anisotropy in critical itinerant ferromagnets

Very general considerations suggest that critical itinerant ferromagnets display fluctuation-induced helimagnetism near to their quantum critical points. Evidence of this behaviour has been found in a number of materials, but often the experimental phase diagram is rather richer than that predicted by the minimal model. I will report calculations of the effects of adding spin and fermi surface anisotropy to this minimal model. The possible phase diagram is considerably enriched. Finally, I visit the curious experimental phenomenon of hard axis magnetic order, whereby itinerant ferromagnets with a hard axis susceptibility at high temperature ultimately form magnetic order along this hard axis at low temperature. I report an update to our previous explanation for this (the quantum Indian rope trick) that allows for the Kondo physics prevalent in these hard axis ferromagnets (the Kondo Indian rope trick).

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