

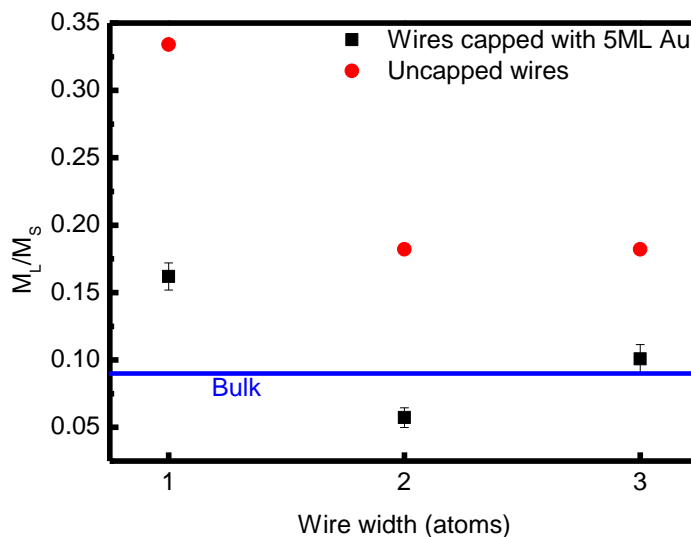
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Few-atom wide capped nanowire arrays of Cobalt

As magnetic structures decrease in size and dimensions, from macroscopic 3-D structures to nanoscopic 1-D structures, unexpected magnetic behaviours can be observed. This is particularly the case on capping such nanostructures. These new observations can deepen our understanding of the basic physics and mechanisms of magnetic behaviour in these capped nanostructures. Capping magnetic structures has previously been shown to alter their magnetic properties, for instance the Curie temperature¹ and the magnetic anisotropy².

A review of the work performed on uncapped planar arrays of 1-D Co nanowires on the Pt (997) surface is firstly given where the observed magnetic properties behave non-monotonically with increasing wire width of the few-atom wide cobalt nanowires³.

In these studies arrays of Co nanowires were grown and the capped with a few monolayers of Au. These capped wires were shown to have altered magnetic properties. An example of which is an increased Curie temperature while maintaining a non-quenched orbital magnetic moment.



¹ R. Vollmer, S. van Dijken, M. Schleberger et al., Physical Review B **61** (2), 1303 (2000).

² F. Luis, J. Bartolome, F. Bartolome et al., Journal of Applied Physics **99** (8) (2006).

³ P. Gambardella, A. Dallmeyer, K. Maiti et al., Physical Review Letters **93** (7) (2004).