

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Enhanced Magnetism in SrRuO₃ Thin Film by SrTiO₃ Capping Monolayers SEAN THOMAS, University of California, Irvine, BOUWE KUIPER, University of Twente, JEFF BOTIMER, ELLIOT PERSICO, University of California, Irvine, GERTJAN KOSTER, University of Twente, JING XIA, University of California, Irvine — Substrate induced mechanical strain is known to reduce the magnetism in itinerant ferromagnetic SrRuO₃ thin films. Here we show that monolayers of SrTiO₃ epitaxial capping film can be used to enhance the magnetism in ultra-thin SrRuO₃ films. For a device with a 6 monolayer thick SrRuO₃ film, a 2 monolayer thick SrTiO₃ capping layer can boost SrRuO₃'s magnetic Curie temperature by 15 Kelvin. Unlike thick substrates, the monolayers-thick SrTiO₃ capping layer can be patterned using standard lithography methods for making complex oxide electronic devices. We demonstrate a SrRuO₃ film device with regions of different Curie temperatures by patterning the SrTiO₃ capping layer.

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Date submitted: 29 Oct 2012

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