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Revisit of Magnetism of Fe overlayers on Cu(001) CHANYONG HWANG, Korea Research Institute of Standards and Science, YONG ROK OH, Pukyong National University, Y.S. PARK, WONDONG KIM, Korea Research Institute of Standards and Science, LEELA POORNIMA, Chungnam National University, Z.Q. QIU, University of California at Berkeley — Fe films on Cu(001) have drawn a great attention due to the complicated structural and magnetic properties. It is known from the previous investigations that depending on the Fe thickness, Fe/Cu system has three distinguishable regions in terms of the structural and magnetic properties. Especially the spin structure in region II, where the film thickness ranges from 5 ML to 11 ML, has been controversial for the last two decades. We have studied the spin structure of Fe films on Cu(001) in region II via x-ray magnetic circular dichroism (XMCD) and surface magneto-optic Kerr effect (SMOKE) measurements. Wedge-shaped Fe films, which ranged from 6 ML to 10 ML, have been grown on Cu(001) at room temperature by an e-beam evaporator. Our results suggest a new model, which is totally different from the previous models, based on the incommensurate spin density wave.

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