

Abstract Submitted
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Magnetic diamond chains of Cu_3O_4 ¹ BRIGITTE LERIDON, WILLEM RISCHAU, PHILIPPE MONOD, LPEM-CNRS/ESPCI ParisTech - 10 rue Vauquelin - 75005 Paris - France, DOROTHÉE COLSON, SPEC - DSM/DRECAM - CEA Saclay - 91191 Gif-Sur-Yvette Cedex - France — We present magnetization measurements on a satellite phase of $YBa_2Cu_3O_x$ namely $BaCu_3O_4$. This two-dimensional material is composed of alternate layers of Ba and Cu_3O_4 . In the latter, the Cu and O atoms are one-dimensionally ordered in diamond-shaped chains of formula unit Cu_3O_4 . We will show that this material encounters a magnetic phase transition at around 336 K which is due to intra-ordering through superexchange coupling of the spins born by the Cu atoms in these diamond chains. We will discuss the possibility of either ferrimagnetic or antiferromagnetic inter-ordering of these weakly coupled one-dimensional objects and the possible role of Dzyaloshinskii-Moriya interactions.

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