Title: Structural and Microanalytical Studies of CrO2 Thin Films on c-Sapphire by High Resolution Electron Microscopy Methods

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Abstract: Chromium dioxide (CrO_2) has been extensively used in the magnetic recording industry. However, it is its ferromagnetic half-metallic nature that has more recently attracted much attention, primarily for the development of spintronic devices. CrO_2 is the only stoichiometric binary oxide theoretically predicted to be fully spin polarized at the Fermi level. It presents a Curie temperature of ~ 396 K, i.e. well above room temperature, and a magnetic moment of 2 mB per formula unit. However an antiferromagnetic native insulating layer of Cr_2O_3 is always present on the CrO_2 surface which enhances the CrO_2 magnetoresistance and might be used as a barrier in magnetic tunnel junctions.

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