## Abstract Submitted for the MAR11 Meeting of The American Physical Society

Electrical properties of vanadium dioxide devices for micro-electronic applications making use of metal-insulator phase transitions¹ KOEN MARTENS, IULIANA P. RADU, KULeuven - IMEC, SOFIE MERTENS, CHRISTOPH ADELMANN, XIAOPING SHI, HILDE TIELENS, MARC SCHAEKERS, CEDRIC HUYGHEBAERT, SVEN VAN ELSHOCHT, IMEC, STE-FAN DE GENDT, MARC HEYNS, KULeuven - IMEC, JORGE A KITTL, IMEC — In principle the metal-to-insulator transition offers prospects for use in an electronic switch. This study investigates the properties of VO<sub>2</sub> test devices to evaluate VO<sub>2</sub>'s potential use in micro-electronic applications such as a memory, two-terminal selector or transistor device. Vanadium dioxide thin films were produced by thermal oxidation of vanadium and the physical properties of these layers were investigated. Electrical properties of concentric two-terminal vanadium dioxide structures will be discussed such as current-voltage behavior, switching behavior and contact formation to VO<sub>2</sub> with different metals and implications such as Fermi-level pinning and Schottky-type behavior for different metals.

<sup>1</sup>The FWO is acknowledged.

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