Supporting Information


Supporting Information

Title
Tailoring Vanadium Dioxide Film Orientation using Nanosheets: A Combined Microscopy, Diffraction, Transport and Soft X-ray in Transmission Study

Phu Tran Phong Le², Kevin Hofhuis², Dr. Abhimanyu Rana¹, Prof. Mark Huijben¹, Prof. Hans Hilgenkamp¹, Prof. G. Rijnders¹, Prof. J.E. ten Elshof¹, Prof. Gertjan Koster*¹, Dr. Nicolas Gauquelin*¹,², Gunnar Lumbeeck², Dr. Christian Schüßler-Langeheine³, Dr. Horia Popescu⁴, F. Fortuna⁵, Steef Smit⁶, Xanthe H. Verbeek⁶, Georgios Araizi-Kanoutas⁶, Dr. Shrawan Mishra⁶,⁷, Dr. Igor Vakivskyi⁸,⁹, Prof. Hermann A. Dürr⁶,⁸, Prof. Mark S. Golden*⁶

1 IMS, MESA+ UTwente
2 Electron Microscopy for Materials Science (EMAT), University of Antwerp, 2020 Antwerp, Belgium
3 Helmholtz-Zentrum Berlin für Materialien und Energie, BESSY II, Albert-Einstein-Str. 15 12489 Berlin, Germany
4 Synchrotron SOLEIL, L’Orme des Merisiers Saint-Aubin, BP 48 91192 Gif-sur-Yvette Cedex, France
5 CSNSM, Université Paris-Sud and CNRS/IN2P3, Bâtiments 104 et 108, 91405 Orsay cedex, France
6 Van der Waals-Zeeman Institute, Institute of Physics, Science Park 904, 1098 XH, Amsterdam, The Netherlands
7 School of Material Science and Technology, Indian Institute of Technology (BHU), Varanasi 221005, India
8 Department of Physics and Astronomy, Uppsala University, Box 516 751 20 Uppsala, Sweden
9 Center for Memory and Recording Research, University of California San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0401, USA

Corresponding authors: G.Koster@utwente.nl
Nicolas.Gauquelin@uantwerpen.be
M.S.Golden@uva.nl
Figure S1 shows the difference in morphology as observed by AFM of VO$_2$ thin films grown on two types of nanosheets. In particular, there is a difference in domain size, where the growth domains have a roughly 2-3 smaller size when VO$_2$ is grown on TO compared to NWO. The films grown on NWO have a larger peak-to-peak roughness. This difference presumably is a result of the difference in growth kinetics on either type of nanosheet. Note that the individual nanosheets are non-discriminable in these images.