The band structure of VO2 measured by angle-resolved photoemission\(^1\) LUCA MORESCHINI, Advanced Light Source, YOUNG JUN CHANG, ALS and Fritz-Haber Institut, DAVIDE INNOCENTI, ALS and University of Rome-Tor Vergata, ANDREW L. WALTER, ALS and FHI, YOUNG SU KIM, GEOFFREY GAINES, AARON BOSTWICK, JONATHAN DENLINGER, ELI ROTENBERG, ALS — The origin of the 340K metal-insulator transition (MIT) in VO2 is still under debate. the main reason is that no direct experimental verifications of the electronic structure of VO2 exist up to this point. The quality of the available single crystals is not sufficient for ARPES measurements, so that photoemission is limited to angle-integrated mode. New opportunities are offered by oxide films, on which data of equal or even higher quality have been reported (Saeki et al., PRB 2009). WIth the in situ pulsed-laser-deposition (PLD) system available on beamline 7.0.1 at the Advanced Light Source we have grown VO2(001) films on a TiO2 substrate and measured the Fermi surface of the metallic phase. These results will permit a direct comparison with the existing band calculations and open the way to the study of the MIT as a function, e.g., of film thickness or electron doping with Cr.

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