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Capacitive network near the metal insulator transition in Vanadium Dioxide J.G. RAMIREZ, E.J. PATINO, Universidad de los Andes, R. SCHMIDT, Universidad Complutense de Madrid, A. SHARONI, Bar-Ilan University, M.E. GOMEZ, Universidad del Valle, I.K. SCHULLER, University of California-San Diego — Recent infrared spectroscopy and transport measurements in nano-scaled junction of VO2 have revealed the existence of phase separation into metallic and insulating phases. Here we present Impedance spectroscopy measurements performed in high quality Vanadium dioxide (VO_2) thin films for the first time. This technique allows distinguishing between the resistive and capacitive response of the VO_2 films and provides the dielectric properties across the metal-insulator transition (MIT). The film capacitance exhibits an unusual increase close to the MIT which implies the formation of a capacitor network produced by the nanoscale phase separation of metallic and insulating phases. This work has been supported by AFOSR, COLCIENCIAS, CENM and Ramon y Cajal Fellowship.

Edgar J. Patino
Universidad de los Andes

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