

Abstract Submitted  
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**X-ray induced photoconductivity in Vanadium Dioxide samples**  
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Physics University of California, San Diego — Vanadium Dioxide (VO<sub>2</sub>) goes  
through a first-order phase transition at approximately 340K, exhibiting both an  
insulator to metal transition (IMT) and a structural phase transition (SPT), with a  
monoclinic (M1) insulating phase at low temperatures and a rutile (R) metallic phase  
at high temperatures. We show an anomalous behavior of x-ray induced persistent  
photoconductivity (PPC) well below the temperature induced phase transition in  
VO<sub>2</sub> devices. We present conductivity and X-ray Diffraction (XRD) measurements,  
revealing a large enhancement of conductivity due to photo-induced carriers. More-  
over, with the addition of nominal electric fields, we are able to fully transition into  
the rutile metallic phase at room temperature. This effect is completely reversible,  
allowing the monoclinic insulating phase to be recovered via annealing.

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