## Abstract Submitted for the MAR17 Meeting of The American Physical Society

Scanning Probe Microscopy Investigation of H-irradiated ZnO and Co-doped ZnO thin films in dark and UV-light conditions D. D'AGOSTINO, C. DI GIORGIO, F. BOBBA, Physics Department E.R. Caianiello, University of Salerno, IT, A. DI TROLIO, CNR-IS, U.O.S. di Tor Vergata, Rome, IT; LNF, INFN, Rome, IT, A. AMORE BONAPASTA, P. ALIPPI, CNR-ISM, Rome, IT, A. POLIMENI, Physics Department, Sapienza University, Rome, IT, A.M. CUCOLO, Physics Department E.R. Caianiello, University of Salerno, IT — We studied the effect of hydrogen irradiation on ZnO and Co-doped ZnO thin films, discussing the induced multiferroicity and the change of the electronic response to the UV-lighting. Pure and Co-doped thin films were grown by pulsed laser deposition technique on Ag coated Si(p-type) substrate, giving rise to a ZnO/Ag/Si heterostructures, followed by post-growth hydrogenation at temperatures as high as 400 C. In particular, the electronic properties have been probed by light-assisted Scanning Probe Microscopy experiments whereas the magnetic properties have been investigated by Hall transport and magnetization loop measurements. The effect of Co-doping on the electronic density of stases has been also considered.

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