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Light induced electrostatic force microscopy in InN epilayers WEI SHENG SU, Department of Physics, National Taiwan University, C. W. LU, YANG FANG CHEN, Department of Physics, National Taiwan University, Taipei, Taiwan, E.H. LIN, T.Y. LIN, Institute of Optoelectronic Sciences, National Taiwan Ocean University, Keelung, Taiwan, N.C. CHEN, Institute of Electro-Optical Engineering, Chang Gung University, Kwei-Shan, Tao-Yuan, Taiwan, C.F. SHIH, K.S. LIU, Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan, INSTITUTE OF OPTOELECTRONIC SCIENCES, NATIONAL TAIWAN OCEAN UNIVERSITY COLLABORATION, DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING, NATIONAL TSING HUA UNIVERSITY, HSINCHU COLLABORATION, INSTITUTE OF ELECTRO-OPTICAL ENGINEERING, CHANG GUNG UNIVERSITY COLLABORATION — A technique based on electrostatic force microscopy in which light is used to change the charge states of the local region in a solid is introduced and demonstrated. As an illustration, it has been applied to study InN epilayers. Combining with atomic force microscopy, the magnitude of the surface band bending can be obtained for the regions with different surface states. We point out that light induced scanning electrostatic force microscopy is a very useful tool to probe the local electronic transitions of a solid in a sub-micron scale with high sensitivity.

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