

Abstract Submitted  
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**STM study on the electronic phase separation of manganites<sup>1</sup>**

MIN GAO, Oak Ridge National Laboratory, USA; Institute of Physics, Chinese Academy of Sciences, China, ZHENG GAI, PAUL C. SNIJDERS, HANGWEN GUO, THOMAS Z. WARD, Oak Ridge National Laboratory, USA, H.-J. GAO, Institute of Physics, Chinese Academy of Sciences, China, JIAN SHEN, University of Tennessee, USA — Phase separation is a key problem in understanding the exotic properties of complex oxide materials. Combining pulsed laser deposition with in situ scanning tunneling microscopy, we can investigate the electronic phase separation of  $\text{La}_{5/8-x}\text{Pr}_x\text{Ca}_{3/8}\text{MnO}_3$ . Current imaging tunneling spectroscopy reveals both local domain contrast and global conductivity evolving when the temperature crosses over the metal-insulator transition temperature. The domain size can be several hundred nanometers. This result confirms other experimental results and shows that the surface electronic properties of complex oxide materials can represent their bulk properties.

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