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Towards Quantum Gas Microscope for 87Rb-85Rb Mixture CHENG CHEN, CHUYANG SHEN, XIAOLING WU, YUE CUI, SHEN DONG, State Key Laboratory of Low Dimensional Quantum Physics, Department of Physics, Tsinghua University, MENG KHOON TEY, LI YOU, State Key Laboratory of Low Dimensional Quantum Physics, Department of Physics, Tsinghua University; Collaborative Innovation Center of Quantum Matter — The development of quantum gas microscope has opened the door to study and answer fundamental questions of modern condensed matter physics with ultracold atom experiment. When loaded into a periodic potential, ultracold atomic quantum gases can emulate Hamiltonians of a variety of condensed matter model, such as the bosonic or fermionic Hubbard models, and simulate their equilibrium and dynamical properties. We will report our ongoing experiment aimed at achieving single-site resolved quantum gas microscope using a 87Rb-85Rb mixture in a 2D/3D optical lattice. Our microscope features an off-the-shelf aspherical lens placed inside the vacuum chamber.

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