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Dispersive imaging of antiferromagnetic Spinor Bose-Einstein Condensate[1] DI LAO, CHANDRA RAMAN, Georgia Institute of Technology — Non-equilibrium phenomena in quantum many-body systems can be explored by changing external fields dynamically. This provides a powerful platform to study spin dynamics such as Hanbury Brown-Twiss correlation (HBT) of different spin components that we have recently explored[1]. We have studied antiferromagnetic spinor Bose-Einstein condensates (BECs) by dispersive imaging based on Faraday rotation. It provides a promising method to probe the dynamics of highly non-equilibrium spinor gases by a continuous series of measurements with only minimal disturbance. Using this technique, we can non-destructively probe the magnetization dynamics during a quench through the quantum phase transition. We will study the universality in the correlation of different spin components in real time during a strong quench in the vicinity of a continuous phase transition. [1]A. Vinit and C. Raman, New J. Phys. 20, 095003 (2018).

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