Spatio-temporal correlations after a quantum quench in the Bose-Hubbard model[1] MATTHEW FITZPATRICK, MALCOLM KENNETT, Simon Fraser University — The quench dynamics of the Bose-Hubbard model (BHM) has received considerable attention in recent years. Theoretically, it has proven challenging to study spatio-temporal correlations in the BHM in dimensions higher than one. We use the Schwinger-Keldysh technique and a strong-coupling expansion to develop a two-particle irreducible formalism that allows the study of spatio-temporal correlations in both the superfluid (SF) and Mott-insulating (MI) regimes during a quantum quench for dimensions higher than one. In this talk, we focus on quenches from the SF to the MI regime and present our numerical results for the evolution of two-time correlation functions. We relate our results to recent cold-atom experiments.

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