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Quench Dynamics of Quasi-2D Antiferromagnetic Spinor Condensates SEJI KANG, SANG WON SEO, JOON HYUN KIM, YONG-IL SHIN[1], Seoul Natl Univ — We report on the quench dynamics of quasi-2D antiferromagnetic spin-1 Bose-Einstein condensates, where we prepare a highly oblate condensate in the easy-axis polar phase with a positive quadratic Zeeman energy, q>0 and quench the condensate to the eaxy-plane polar phase by suddenly changing q to negative. The initial instability is caused by transverse magnons as expected in a mean-field Bogoliubov theory and then, spin turbulence is generated and relaxed, leading to creation of topological defects such as half-quantum vortices. We characterize the quench dynamics by measuring the temporal evolution of the spin populations and the spatial distribution of magnetization. The scaling behavior of the quench dynamics will be discussed in terms of initial instability, spin wave generation, and defect formation.

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