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Collision of Half-Quantum Vortices in a Spinor Bose-Einstein Condensate SANG WON SEO, WOO JIN KWON, SEJI KANG, YONG-IL SHIN, Seoul Natl Univ — We report on the experimental observation of the collision dynamics of half quantum vortices (HQVs) in the easy-plane polar phase of antiferromagnetic spin-1 Bose-Einstein condensates [1]. Using a deterministic vortex dipole generation method, we perform collision experiment between two HQV pairs. The scattering patterns of the HQVs reveal their short range interactions that arise from their ferromagnetic cores. In addition, we investigate the relaxation of turbulent superflow containing many HQVs, providing a new type of quantum turbulence. In the relaxation dynamics, we observe that spin waves are generated and maintained by the HQV collisions. [1] S.W. Seo, W.J. Kwon, S. Kang and Y. Shin, arXiv:1512.07696

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