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**Local spin dynamics near quantum critical line of spin-1/2 antiferromagnetic Heisenberg XXZ chain with longitudinal magnetic field**

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The spin-1/2 antiferromagnetic quantum XXZ chain is one of the most well-studied integrable model. Although all of its eigenstates and spectrum can be obtained via algebraic Bethe ansatz method, understanding its local dynamics remains a great challenge [1]. In the anisotropic gapped region, while tuning longitudinal field, there is a line of critical fields where the system undergoes quantum phase transitions. Recent experiments on  $BaCo_2V_2O_8$  provided some evidences for understanding low-energy spin dynamics near critical line [2]. In this work, we further calculate local spin dynamics in this region in low frequency limit by form factor methods. Our results can be compared with measurements of NMR relaxation rate. [1] J.-S. Caux, H. Konno, M. Sorrell, and R. Weston, *Journal of Statistical Mechanics: Theory and Experiment* 2012, P01007 (2012) [2] S. Kimura, T. Takeuchi, K. Okunishi, M. Hagiwara, Z. He, K. Kindo, T. Taniyama, and M. Itoh, *Physical review letters* 100, 057202 (2008)

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