$^{51}$V NMR Study of a quasi-1D XXZ spin chain system BaCo$_2$V$_2$O$_8$

K.-Y. Choi, NHMFL, FSU, Tallahassee, FL32306-4390, USA, N.S. DALAL COLLABORATION, A.P. REYES COLLABORATION, P.L. KUHNS COLLABORATION, H.D. ZHOU COLLABORATION, C.R. WIEBE COLLABORATION — We present $^{51}$V NMR measurements on the quasi-one-dimensional $S=1/2$ XXZ antiferromagnet BaCo$_2$V$_2$O$_8$ along the chain. The $^{51}$V NMR spectrum shows that the quantum phase transition takes place from the Néel ordered phase to the incommensurately ordered phase around $T_c \approx 4$ T. In addition, we studied a spin-lattice relaxation rate, $1/T_1$, as a function of temperature and field. Our results are compared to a theoretical prediction and are discussed in terms of a softening of spinons in an external field.

Kwang-Yong Choi
NHMFL, FSU, Tallahassee, FL32306-4390, USA

Date submitted: 04 Dec 2007  Electronic form version 1.4