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Of a long list of multiferroic materials,  $\text{BiFeO}_3$  is arguably one of the most interesting multiferroic materials as it displays rare room-temperature multiferroic behavior:  $T_N = 650$  K and  $T_C = 1050$  K. Hence  $\text{BiFeO}_3$  has been extensively investigated for potential applications. It also has a very interesting incommensurate magnetic phase transition with an extremely long period of  $650 \text{ \AA}$ . In this talk, I will present our latest results [1-4] mainly obtained from high-resolution neutron scattering experiments on this fascinating material. Using the vast amount of the data, I will sketch a coherent picture of the rare room-temperature multiferroic behavior and, most importantly, a full spin Hamiltonian of  $\text{BiFeO}_3$ .

- [1] Jaehong Jeong, et al., Phys. Rev. Lett. 108, 077202 (2012)
- [2] Sanghyun Lee et al., Phys. Rev. B Rapid Comm. 88, 060103R (2013)
- [3] Jaehong Jeong, et al., Phys. Rev. Lett. 113, 107202 (2014)
- [4] [Review] Je-Geun Park, et al., J. Phys.: Condens. Matter 26, 433202 (2014)