

Abstract Submitted  
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**High Magnetic Field Phase of the Pyrochlore Quantum Magnet  $\text{Tb}_2\text{Ti}_2\text{O}_7$** <sup>1</sup> LIANG YIN, JIAN-SHENG XIA, YASU TAKANO, NEIL SULLIVAN, NHMFL, Department of Physics, University of Florida, EUN-SUNG CHOI, NHMFL, Florida State University, QIU JU LI, XUEFENG SUN, University of Science and Technology of China — By means of ac magnetic-susceptibility and vibrating-sample magnetization measurements in magnetic fields along [111], we find a new magnetic phase of  $\text{Tb}_2\text{Ti}_2\text{O}_7$  between 15T and 16T and below 2.5K with the existing magnetic transition at 1.2T and below 0.6mK. This new magnetic transition implies that the long-range ordering, which has been discussed in other reports, exists between 1T and 15T at low temperatures. Above the critical field of this transition,  $\text{Tb}_2\text{Ti}_2\text{O}_7$  tends to be fully-polarized up to 35T or form an unknown spin-configuration. A new temperature-field phase diagram is established below 4 K and in a field up to 35T.

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