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Unusual Magnetic Behavior in $BaMn_2Sb_2$[1] RAMAKANTA CHAPAI, ZHENYU DIAO, RONGYING JIN, Louisiana State University — We have performed experimental investigation on magnetic properties of $BaMn_2Sb_2$ single crystals grown using the flux method. X-ray diffraction measurements show that $BaMn_2Sb_2$ forms the $ThCr_2Si_2$-type tetragonal structure at room temperature. Single crystal neutron diffraction refinement indicates the G-type antiferromagnetic (AFM) ordering below T_N. However, the transition temperature T_N is strongly sample dependent, varying from 280 K to 800 K. At a fixed temperature and magnetic field, the DC magnetization is also strongly time dependent. These results indicate that the magnetic properties of $BaMn_2Sb_2$ are extremely sensitive to sample and measurement history. Possible origins will be discussed.

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Ramakanta Chapai
Louisiana State University

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