

Abstract Submitted  
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**Enhancement of magnetic moment in powder Mn<sub>11</sub>Si<sub>19</sub>** KIY-OTAKA HAMMURA, Hitachi Cambridge Laboratory, University of Cambridge, HARUHIKO UDONO, TOMOSUKE AONO, Ibaraki University — Higher-manganese silicides (HMSs), having a formula of MnSi<sub>1.75-x</sub>, have drawn much attention in terms of future spintronics materials, following provisional findings of ferromagnetism in them. However, their magnetic properties have still been controversial. In this paper, magnetic moment in Mn<sub>11</sub>Si<sub>19</sub> was measured at temperatures 5K to 290K, both in bulky and in powdery state. The bulk specimen was carefully prepared using a temperature gradient solution growth (TGSG) method and confirmed to be of single crystal by x-ray characterisation. It was found that Mn<sub>11</sub>Si<sub>19</sub> had paramagnetism. Moreover, its magnetic moment was enhanced from 0.16 Wb m/ $\mu_B$  to 0.22 Wb m/ $\mu_B$  by changing its structure from bulky and powdery, respectively.

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