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利用者名(日本語) :朱 思源 [1)]，角田一樹 [1)]，Konstantin Kokh[2)], Oleg Tereshchenko[2)]，竹田幸治 [3)]，斉藤祐児 [3)]，谷口雅樹 [1)]，木村昭夫 [1)]
Username (English) :Siyuan Zhu[1)], Kazuki Sumida, Konstantin Kokh[2)], Oleg Tereshchenko[2)], Yukiharu Takeda[3)], Yuji Saitoh[3)], Masaki Taniguchi[1)], Akio Kimura[1)]
所属名(日本語) :1）広島大学，2）ノヴォシビルスク大学，3）日本原子力研究開発機構
Affiliation (English) :1) Hiroshima University, 2) Novosibirsk State University, 3) JAEA
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1. 概要（Summary）

In this work, we have employed XMCD to study the ferromagnetic topological insulator V-doped Sb_2Te_3. Clear XMCD signal is observed not only at the V $L_{2,3}$ edge but at the Sb and the Te $M_{4,5}$ edges. The M-H and M-T measurements up to ±8T have shown that the induced Sb and Te p moment scales with the V 3d spin moment and the Curie temperature is above 30K. This result indicates that Sb and Te *p* holes mediate the ferromagnetism of V-doped Sb_2Te_3. Also we have found that the easy axis of this material is out of plane, which takes an advantage in realizing quantum anomalous Hall effect.

2. 実験(目的,方法)（Experimental）

To study the element-specific magnetic moments, XMCD measurements were performed at BL23SU of SPring-8 with a magnetic field up to 8T. The spectra were taken at 5K.

3. 結果と考察(Results and Discussion)

In our experiment, the XAS and XMCD spectra are acquired at the V $L_{2,3}$ edge, the Sb $M_{4,5}$ edge and the Te $M_{4,5}$ edge at ±8T, 5K. We can clearly observe the absorption edges of V 2*p*, Sb 3*d* and Te 3*d*. The XMCD result clearly shows not only V 3*d* moment but also induced magnetic moments for both Sb and Te 5*p* states.

With M-H measurement, the hysteresis behavior at the V L_3 edge shows the ferromagnetism of the preset system. Interestingly, both Sb and Te M_5 edges show similar hysteresis behavior, which indicate that the magnetic moments at Sb and Te sites are induced by doped V atoms.

By M-T measurement at the V L_3 edge under different magnetic field, we can find that the Curie temperature is higher than 30K. The relatively high Curie temperature would open the to the future application with magnetic topological insulators.

To study the magnetic anisotropy, we tilted the sample by 60 degrees, and observed the variations of hysteresis behavior at the V L_3 and the Sb M_5 edges. We found that the magnetic coercivity decreases to ~ 50%, which leads to a conclusion that the easy axis is aligned along out of plane direction.

4. その他・特記事項（Others）