Supporting Information for:

Significant Enhancement in the Magnetic Properties of Cr_2Te_3 Nanosheets by Atoms Substitution Doping

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This file includes Figure S1-S4 and Table S1.

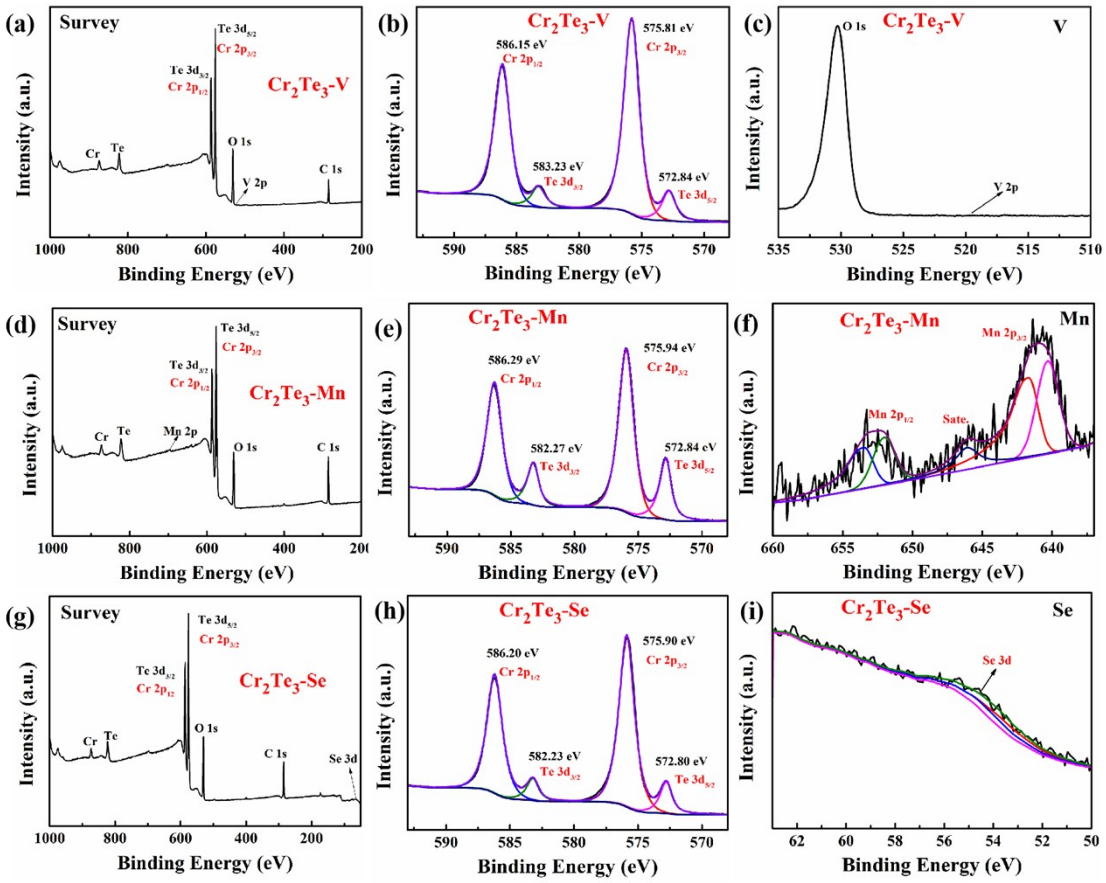

Figure S1 Low resolution XPS survey, High-resolution XPS spectra of Cr 2*p*, Te 3*d*, and M (V 2*p*, Mn 2*p* and Se 3*d* for (a-c) Cr_2Te_3-V, (d-f) Cr_2Te_3-Mn, (g-i) Cr_2Te_3-Se.

It is clear from the XPS diagram that the peaks of Cr and Te are slightly shifted when impurities are introduced into the system, which differs from the original the peaks located at 576.2 eV ($2p_{3/2}$) and 586.5 eV ($2p_{1/2}$) correspond to Cr^{3+}, while those at 572.3 eV ($3d_{5/2}$) and 582.6 eV ($3d_{3/2}$) belong to Te^{2-}. In addition, the M impurity peaks (V, Mn and Se) are not clearly visible due to the low doping levels. Even in the case of the V impurity peak, the oxygen peak dominates, making the V peak unrecognisable.

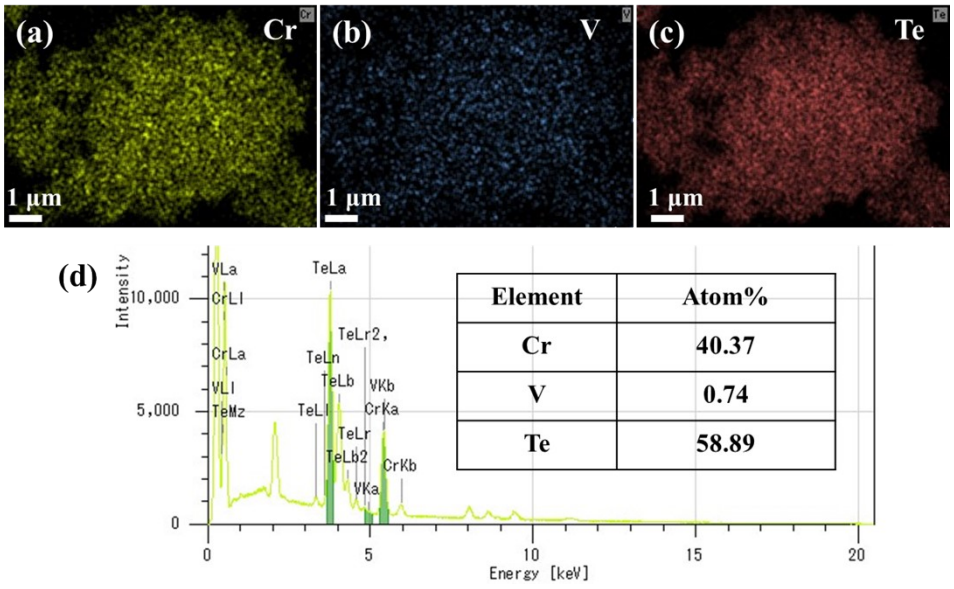

Figure S2 Typical SEM elemental mapping and EDX of Cr, V, and Te for Cr_2Te_3-V sample.

SEM elemental mapping and EDX analysis of the Cr_2Te_3-V nanosheet show that the elements Cr, V and Te are uniformly distributed. This indicates that the elemental composition ratio of M' (Cr, V):Se is close to 2:3, consistent with the Cr_2Te_3 nanostructure, and that a small amount of V is doped into the structural system.

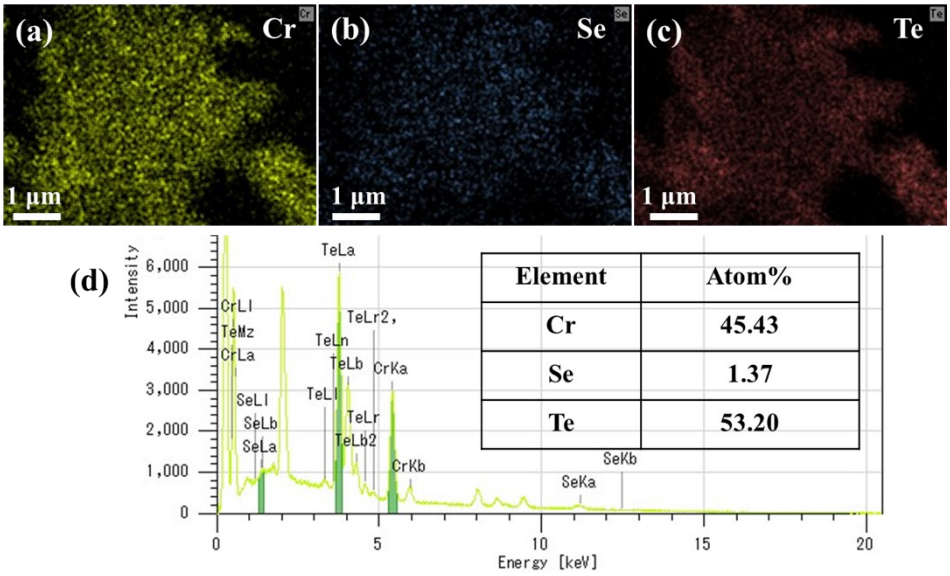

Figure S3 Typical SEM elemental mapping and EDX of Cr, Se, and Te for Cr_2Te_3-Se sample.

SEM elemental mapping and EDX analysis of the Cr_2Te_3-Se nanosheet show that the elements Cr, Se and Te are uniformly distributed. This indicates that the elemental composition ratio of Cr:(Se, Te) is close to 2:3, consistent with the Cr_2Te_3 nanostructure, and that a small amount of Se is doped into the structural system.

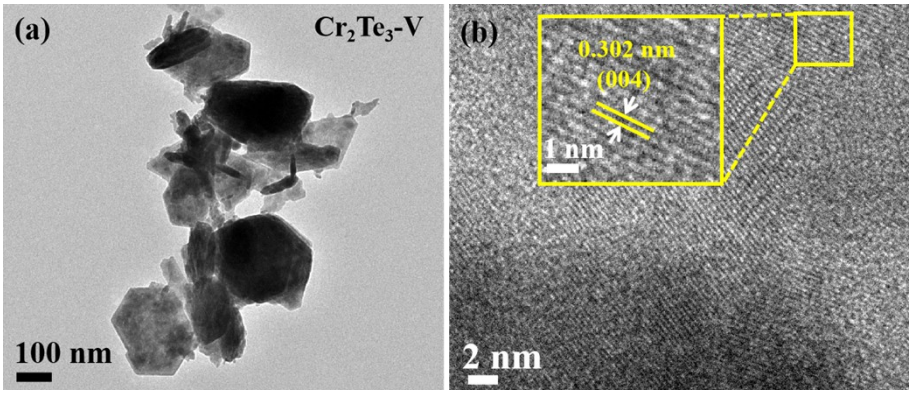

Figure S4 HRTEM and TEM images of Cr_2Te_3-Mn sample.

Table S1 Comparison of the magnetic properties of the actual prepared Cr_2Te_3 nanosheets at 100 K.

	Cr_2Te_3	Cr_2Te_3-V	Cr_2Te_3-Mn	Cr_2Te_3-Se
H_C /(kOe)	3.74	5.57	3.91	3.85
M_r / (emu/g)	2.41	15.18	16.38	8.37
M_S / (emu/g)	4.59	21.73	23.02	11.14