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Supplementary information

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2D Nb_2CT_x MXene/MoS_2 heterostructure construction for nonlinear optical absorption modulation

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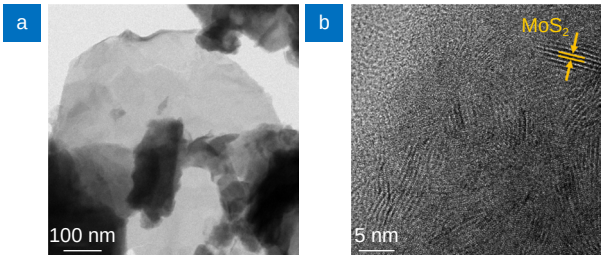

Fig. S1 | (**a**) TEM and its corresponding (**b**) HRTEM image of 2D Nb_2C/MoS_2 heterostructure.

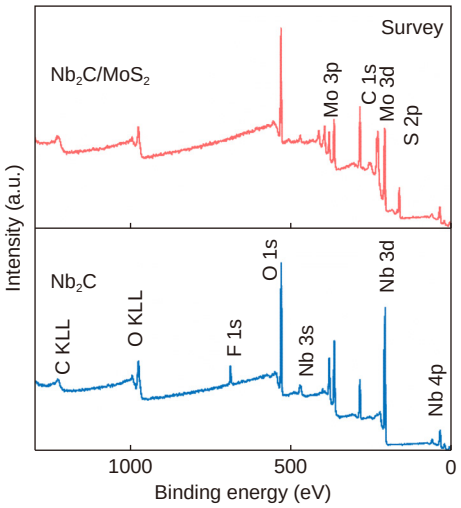

Fig. S2 | XPS Survey spectra of the Nb_2C/MoS_2 and Nb_2C.

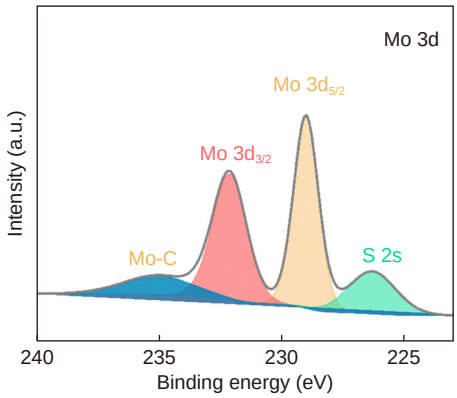

Fig. S3 | XPS spectra of Mo 3d peaks in Nb_2C/MoS_2.

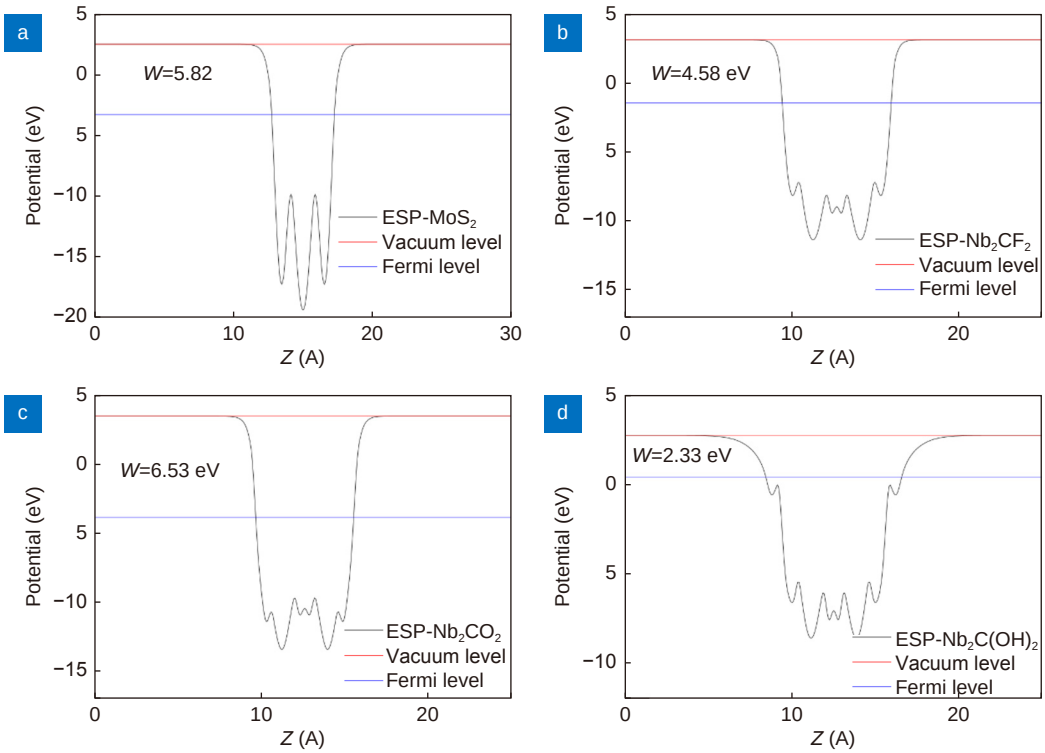

Fig. S4 | Calculated work functions of (**a**) MoS_2, (**b**) Nb_2CF_2, (**c**) Nb_2CO_2, (**d**) $Nb_2C(OH)_2$.

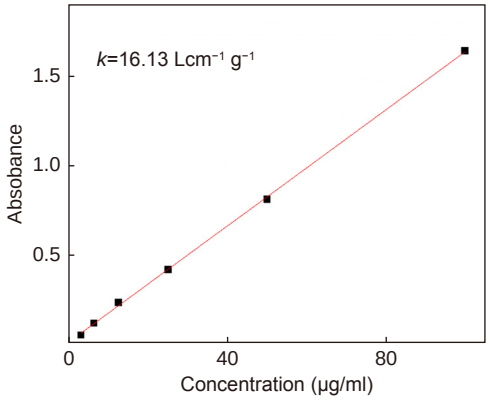

Fig. S5 | The absorbance as a function of concentration of Nb_2C in 850 nm.

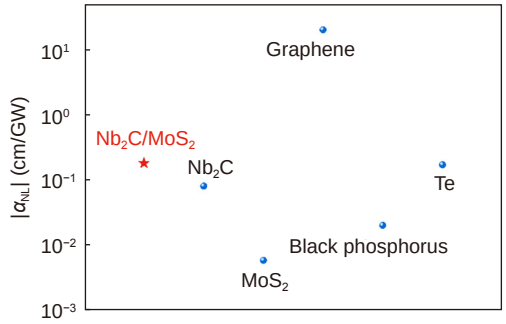

Fig. S6 | Comparison of α_{NL} for different 2D materials: MoS_2[1] ~− 5.80 × 10^{-3} cm/GW at 800 nm, Graphene[2] ~− 20 cm/GW at 790 nm, Black Phosphorus[3] ~−0.02 cm/GW at 1330 nm, and Te[4] ~−0.17 cm/GW at 532 nm. The nonlinear optical absorption coefficient of Nb_2C/MoS_2 is close to the other 2D materials.

References

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