Electronic supplementary information (ESI)†

Multimodal Hybrid 2D Networks *via* Thiol-Epoxides Reaction on 1T/2H MoS_2 Polytypes

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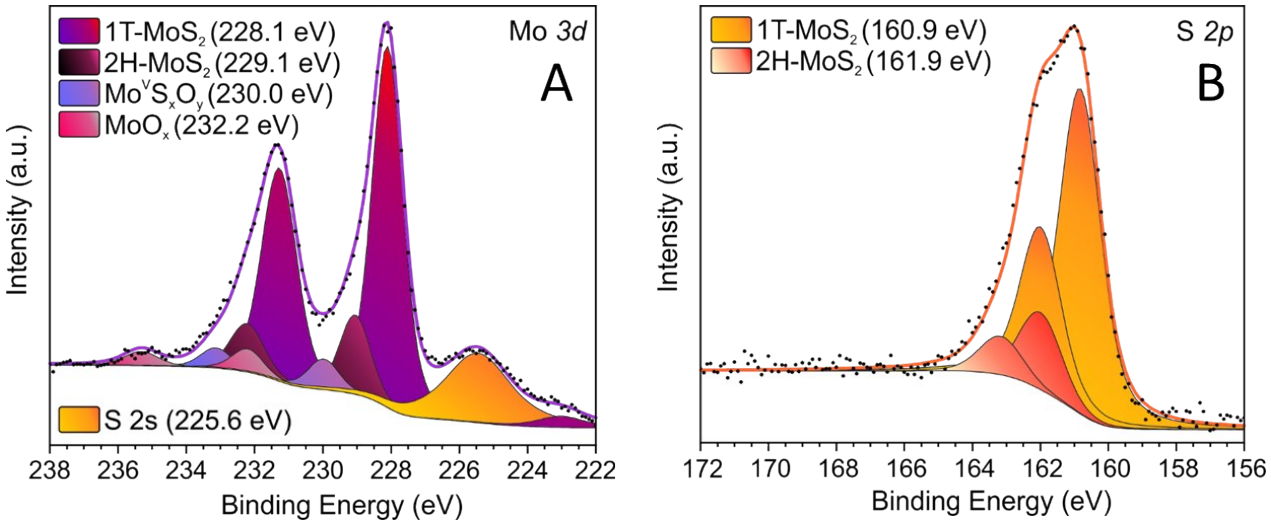

Fig. S1†. (**A**) Mo *3d* and (**B**) S *2p* XPS core level regions of *CE*-MoS_2 together with their relative fits

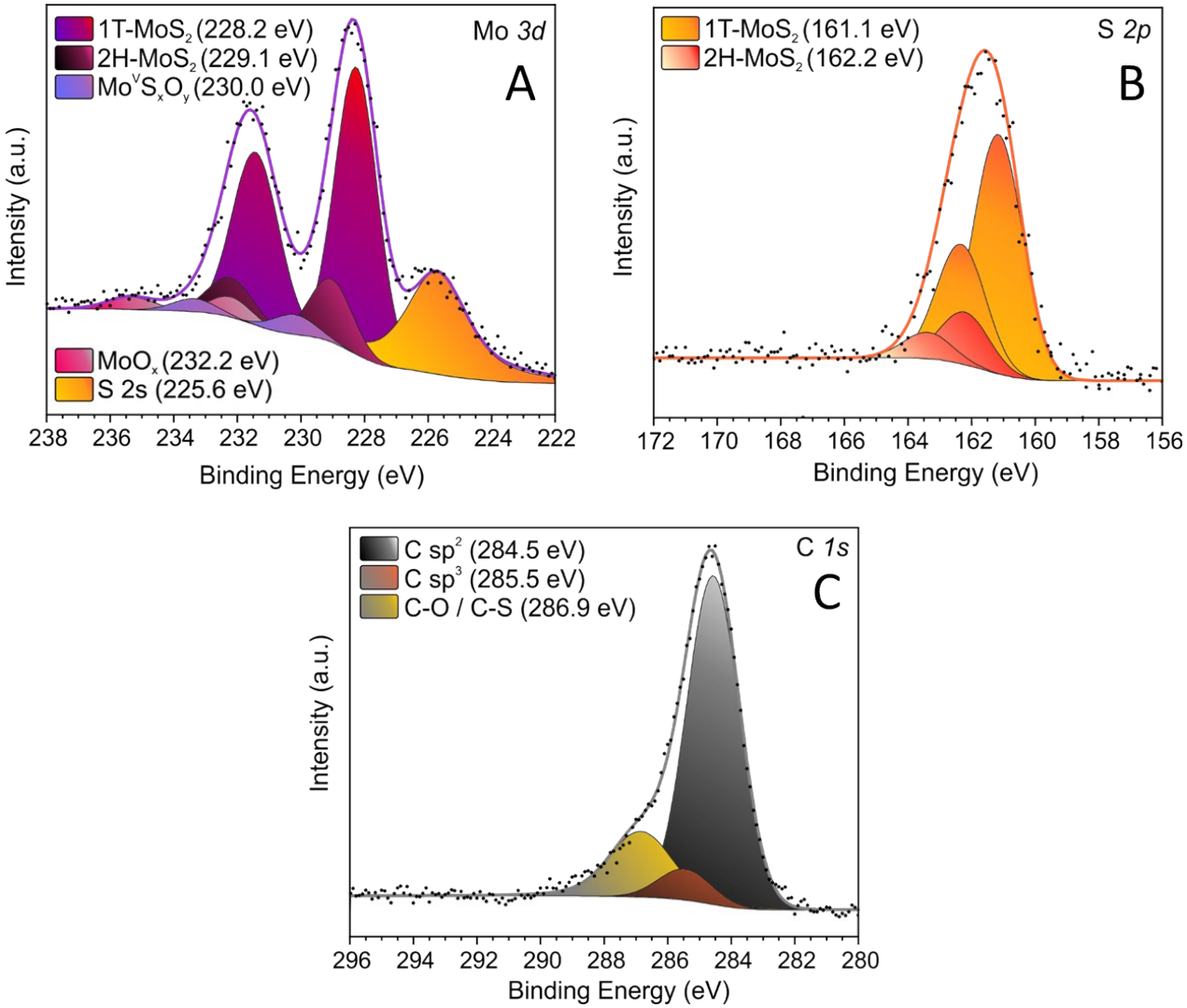

Fig. S2†. (**A**) Mo *3d*, (**B**) S *2p* and (**C**) C *1s* XPS core level regions of MoS_2^{Ph} (**7**) and their relative fits.

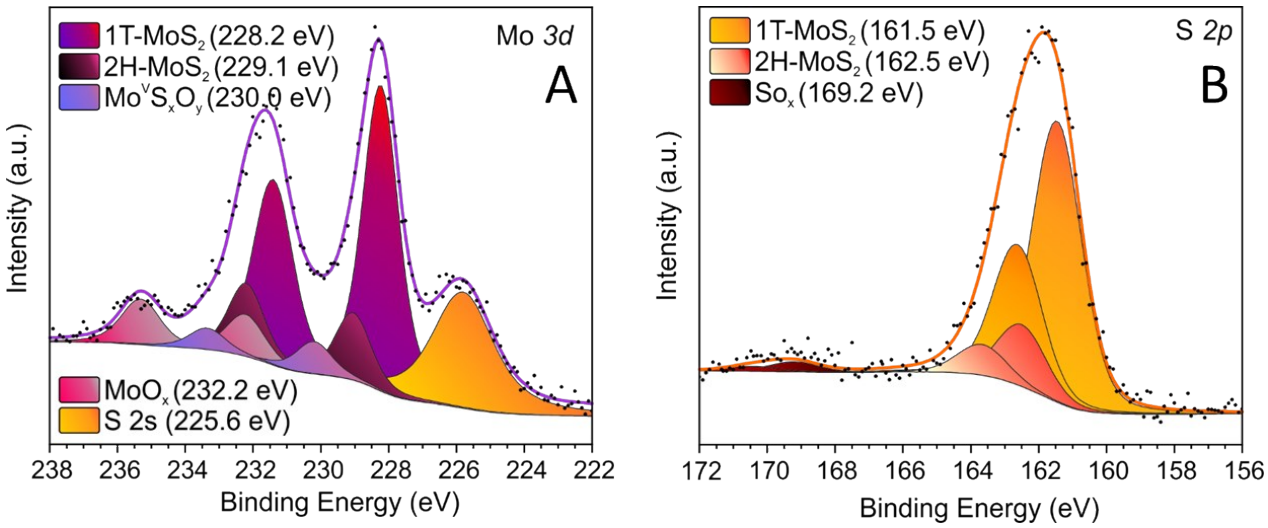

Fig. S3†. (**A**) Mo *3d* and (**B**) S *2p* XPS core level regions of MoS_2^{Br} (**5**) along with their relative fits.

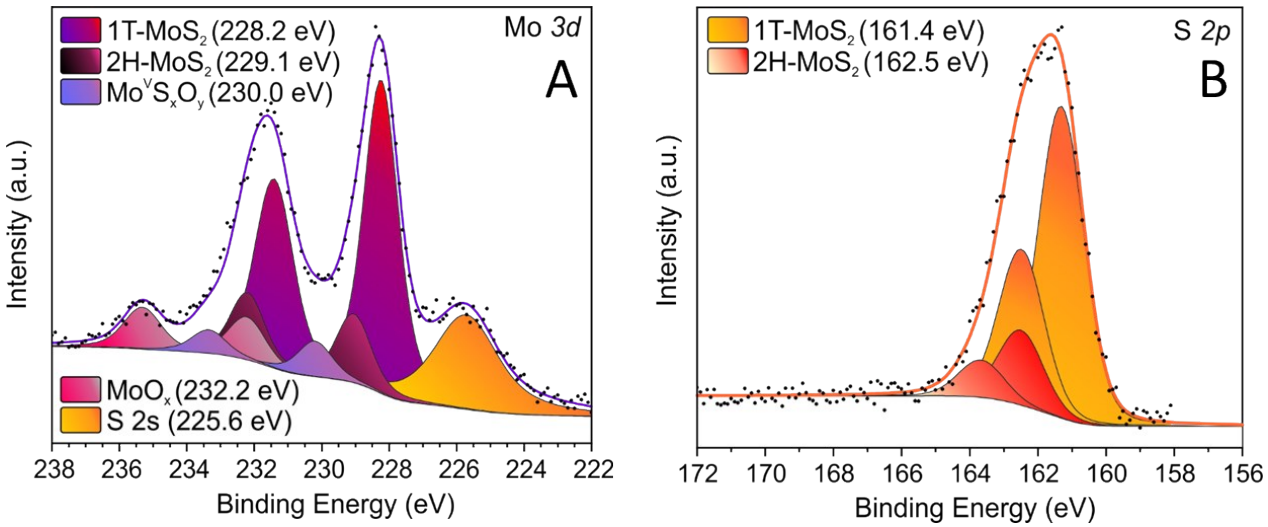

Fig. S4†. (**A**) Mo *3d* and (**B**) S *2p* XPS core level regions of MoS_2^{Cl} (**6**) along with their relative fits.

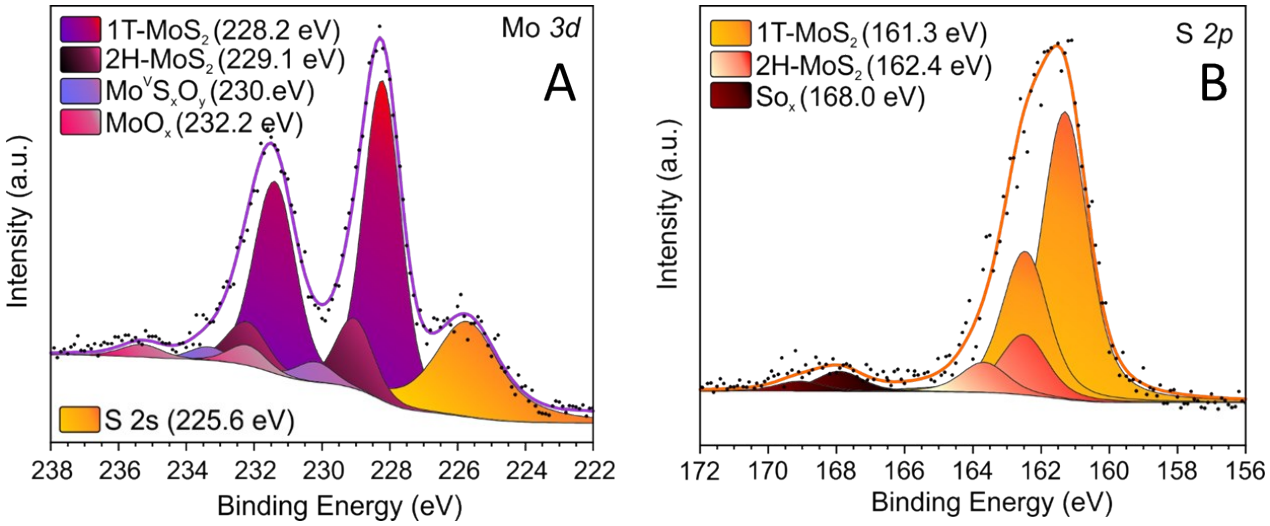

Fig. S5†. (**A**) Mo *3d* and (**B**) S *2p* XPS core level regions of MoS_2^{NHBoc} (**8**) along with their relative fits.

Table S1†. Elemental analysis (EA) and functional groups loading for post-derivatized samples **10-11**

Samples	Elemental analysis [a]			S/grafted group molar ratio	Functional groups loading (mmol/g)	
	N wt.%	C wt.%	S wt.%		from EA [b]	from TGA [c]
MoS_2^{oxaz} (**10**)	1.22	5.89	27.81	9.7	0.89 (0.87) [d]	0.71
$MoS_2^{C=C}$ (**11**)	-	9.03	26.28	10.6	0.77	0.52

[a] calculated as average values over three independent runs [b] loading calculated from C wt.% [c] calculated from TG weight losses (%) in the 40 - 300 °C temperature range [d] loading calculated from N wt.%

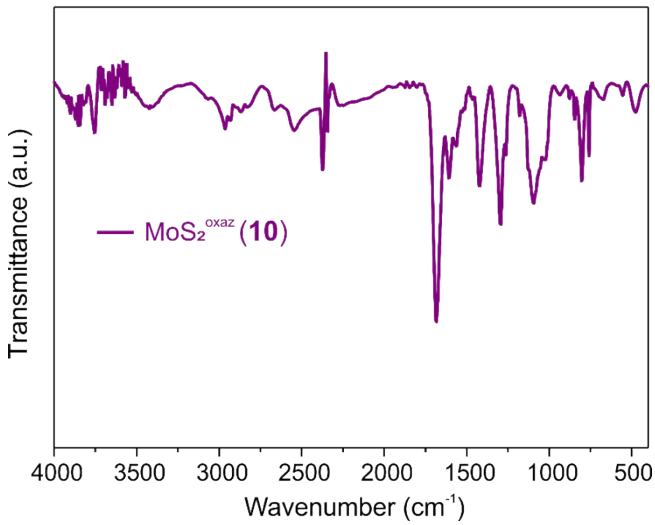

Fig. S6†. IR spectrum of MoS_2^{oxaz} (**10**)

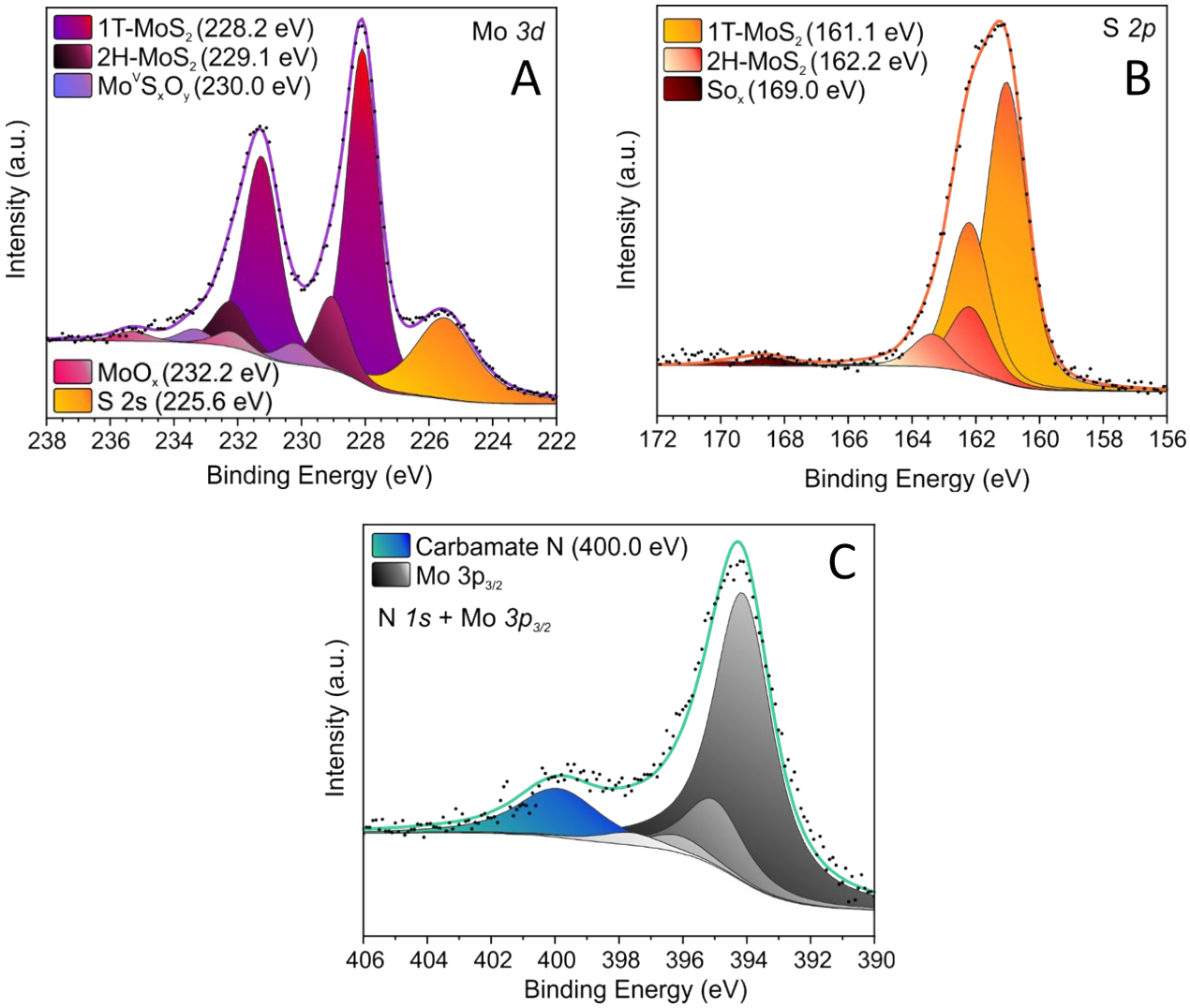

Fig. S7†. (**A**) Mo *3d*, (**B**) S *2p* and (**C**) N *1s* XPS core level regions of MoS_2^{oxaz} (**10**) and their relative fits.

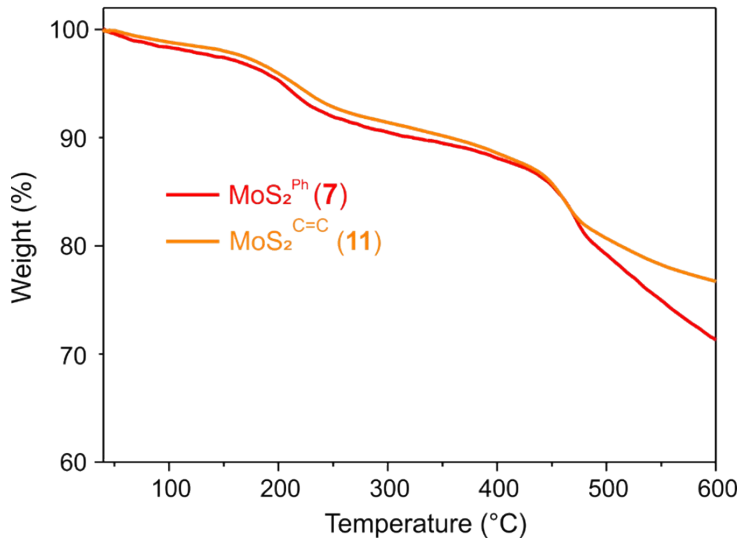

Fig. S8†. Thermogravimetric profile of $MoS_2^{C=C}$ (**11**) at comparison with its starting material MoS_2^{Ph} (**7**). Thermal program: 40-600 °C, 5 °C min^{-1}, N_2 atmosphere, 50 mL min^{-1}.

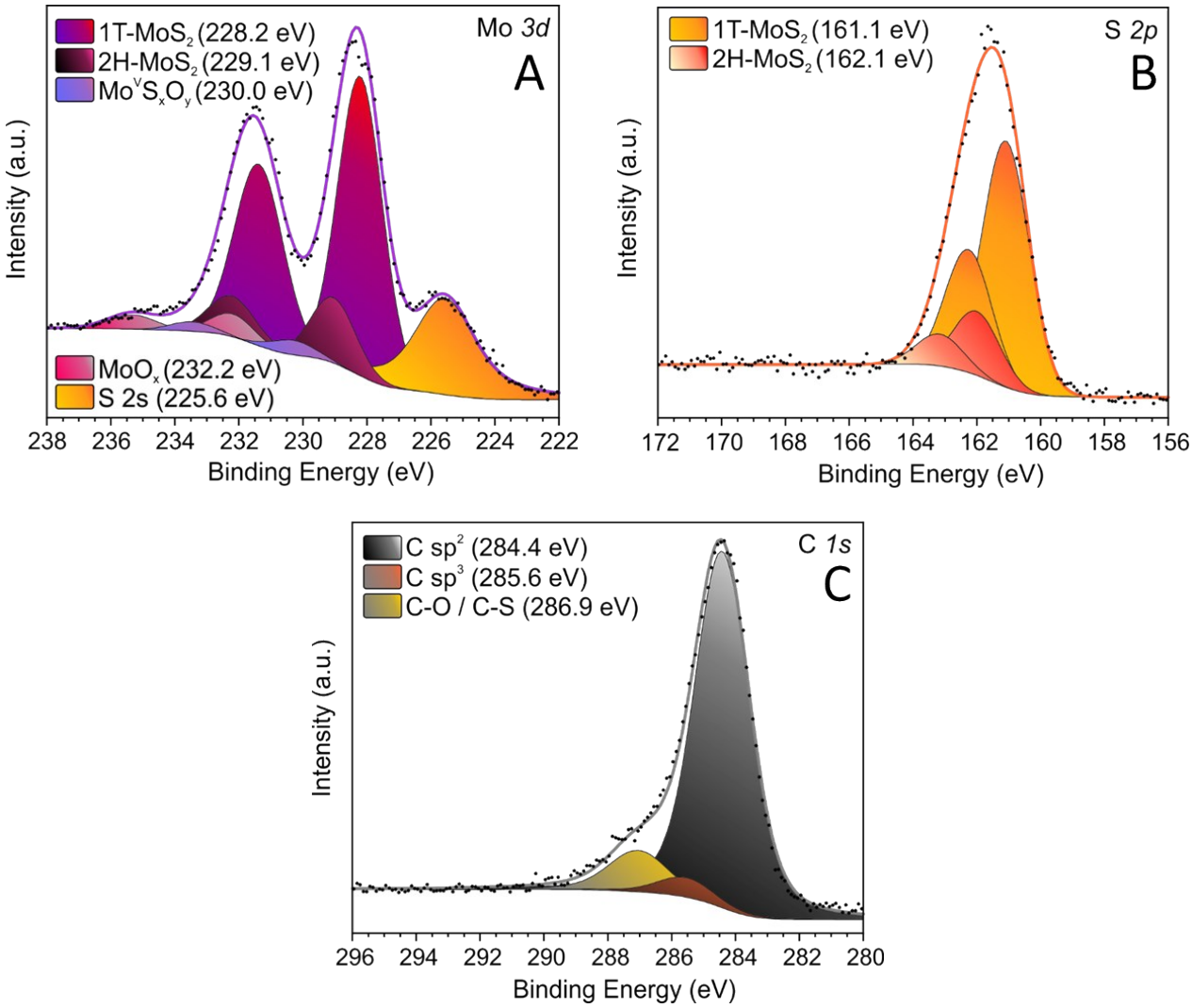

Fig. S9†. (**A**) Mo *3d*, (**B**) S *2p* and (**C**) C *1s* XPS core level regions of $MoS_2^{C=C}$ (**11**) along with their relative fits.