

Chemistry—Methods

Supporting Information

Coupling Long-Range Raman with X-Ray Photoelectron Spectroscopy for Complementary Bulk and Surface Characterization of Battery Materials

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Table S 1: γ - $Li_xV_2O_5$ Raman analysis, V_2O_5 and (400) diamond scattering cross-section in XPS chamber.

Position of the Raman active mode / cm^{-1}	Relative scattering intensity to (400) CVD Diamond / (%)
272	20.1
352	42.1
525	39.9
649	27.7
902	114.4
954	166.9
995 (V_2O_5)	105.8
1332 (CVD Diamond)	1

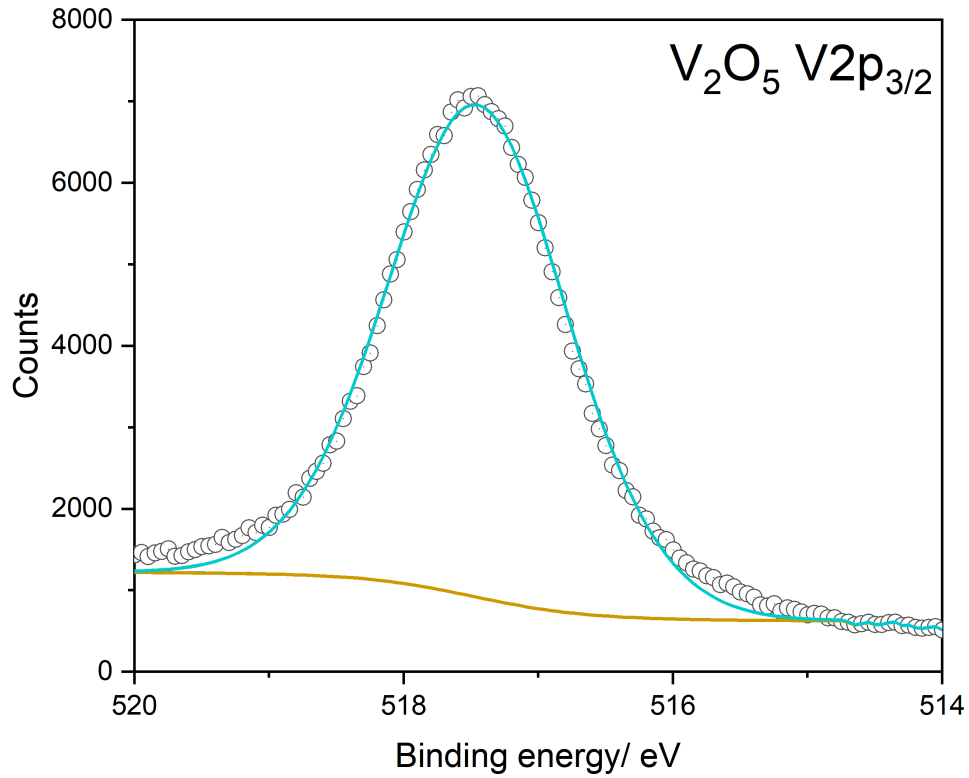


Figure S 1: V2p Photoemission of V_2O_5 .

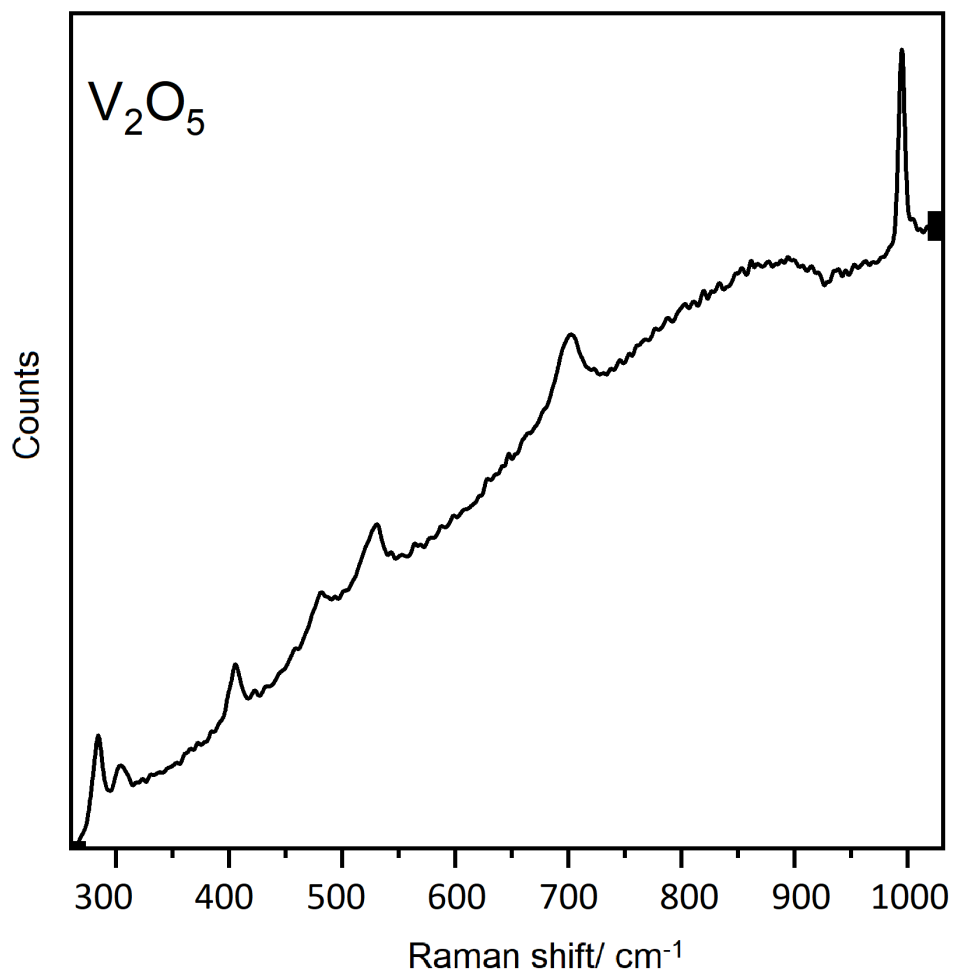


Figure S 2: Long-distance Raman measurement of V_2O_5 inside the chamber.

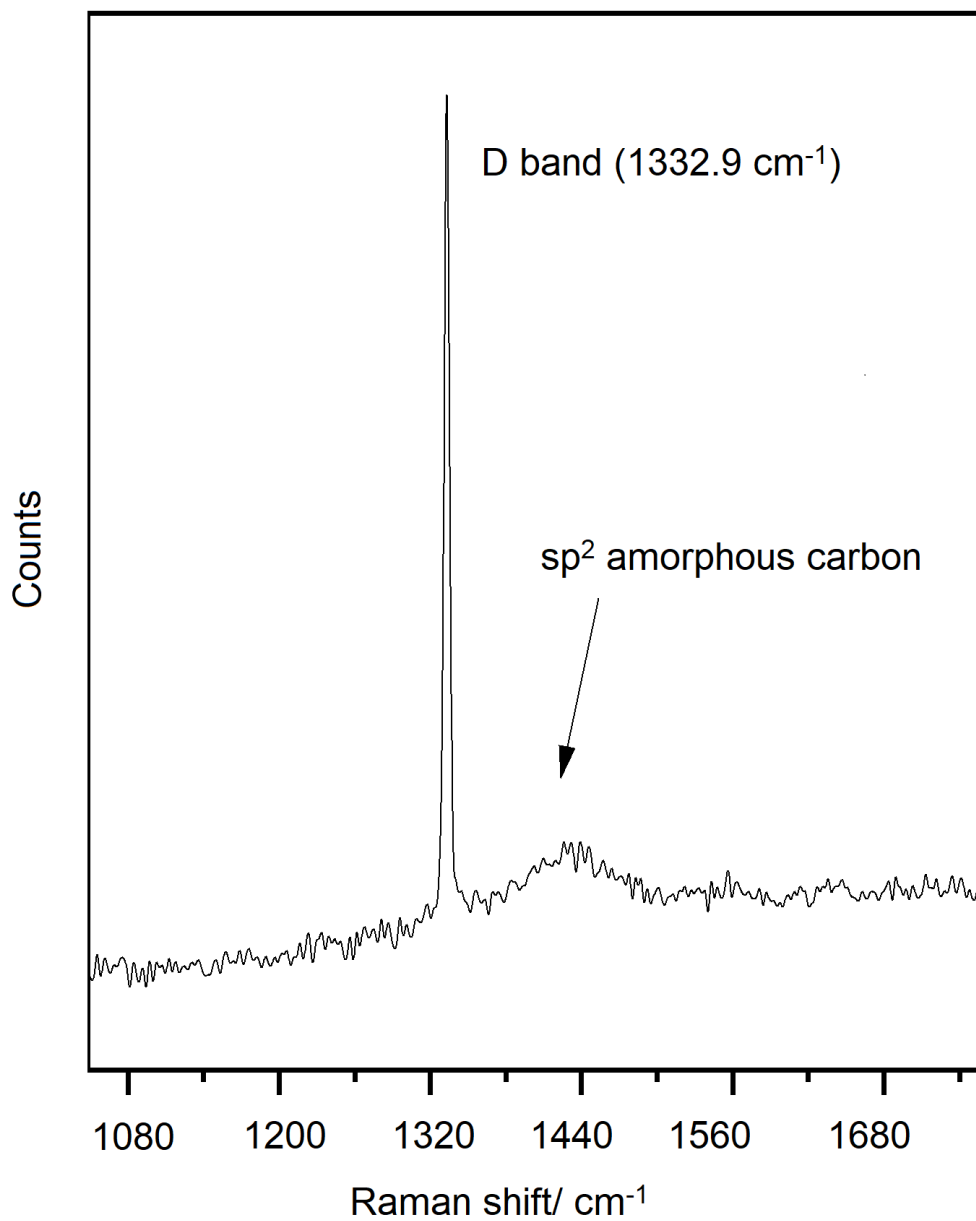


Figure S 3: 532 nm Raman spectrum of (400)-CVD single crystal diamond.

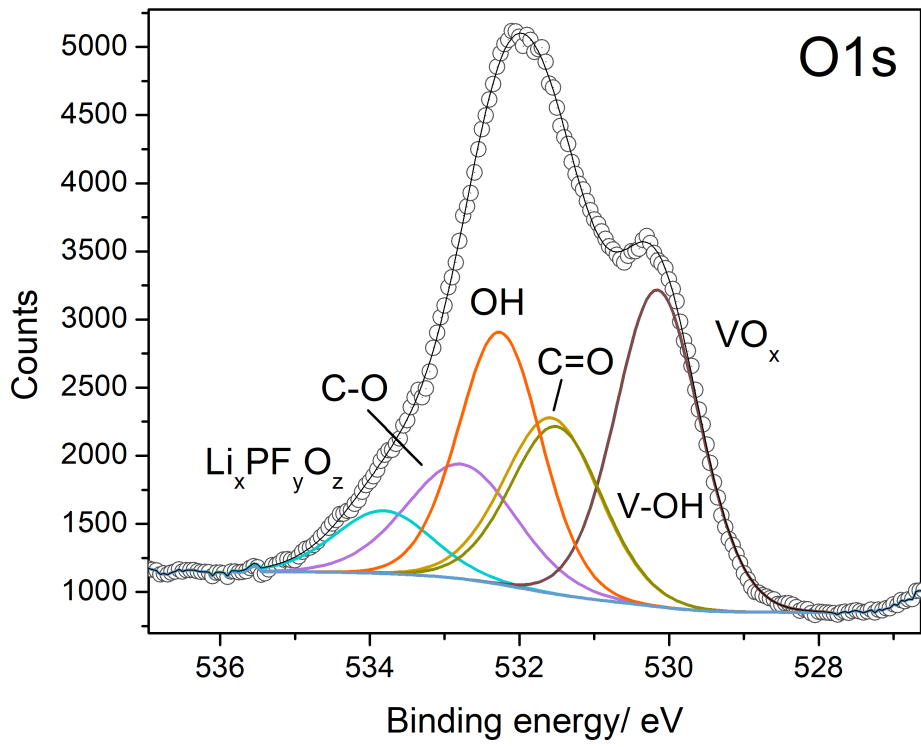


Figure S 4: O1s photoemission of charged $Li_xV_2O_5$.

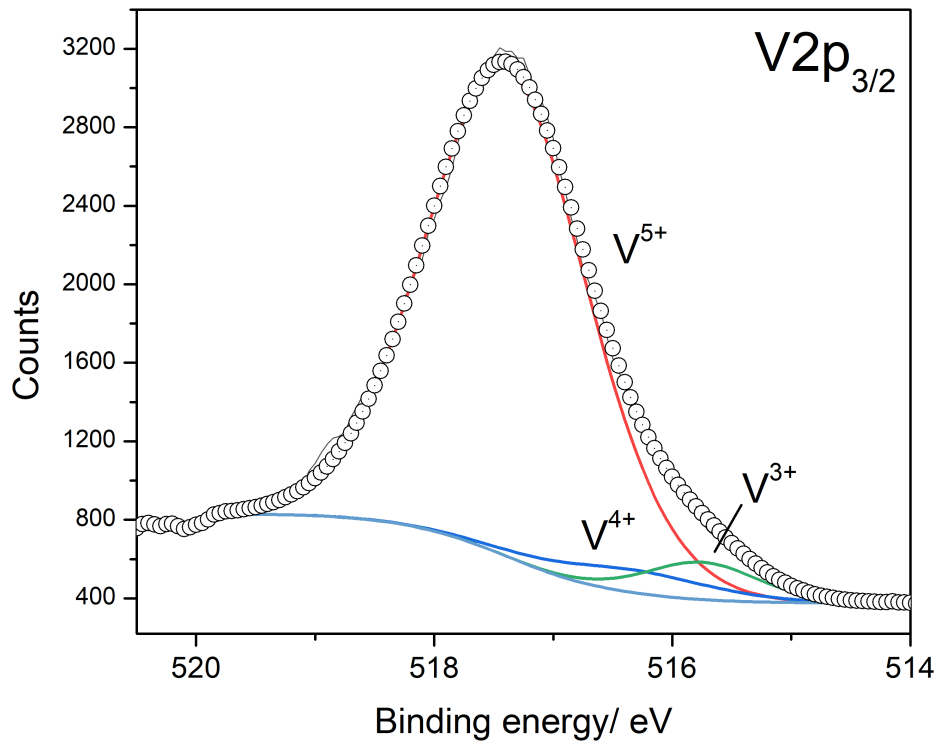


Figure S 5: V2p photoemission of charged $Li_xV_2O_5$.

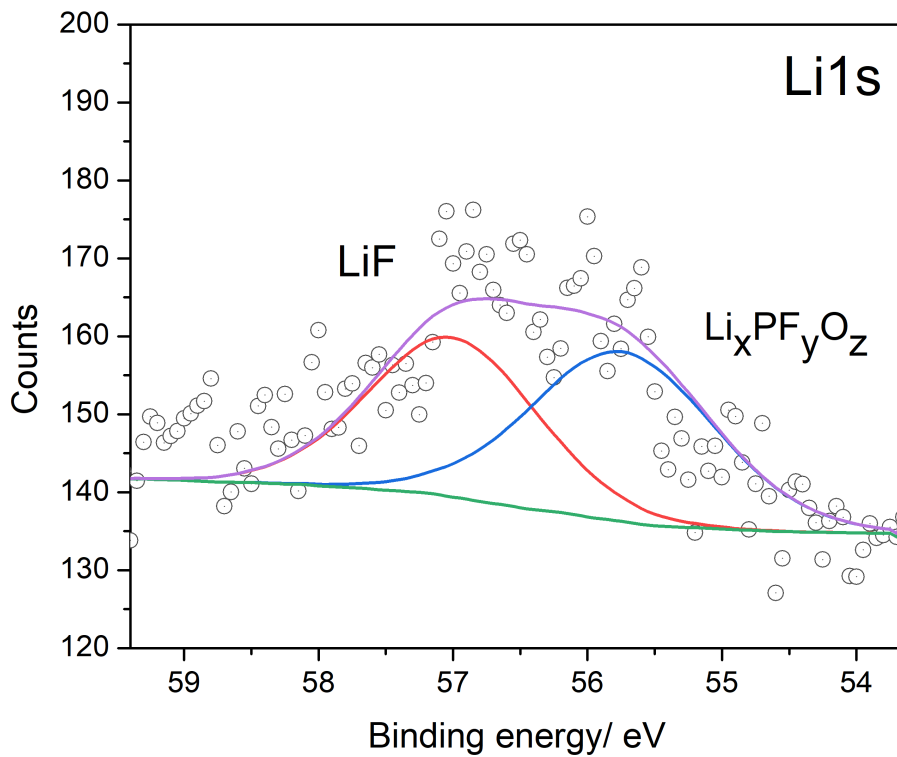


Figure S 6: Li1s photoemission of charged $\text{Li}_x\text{V}_2\text{O}_5$.

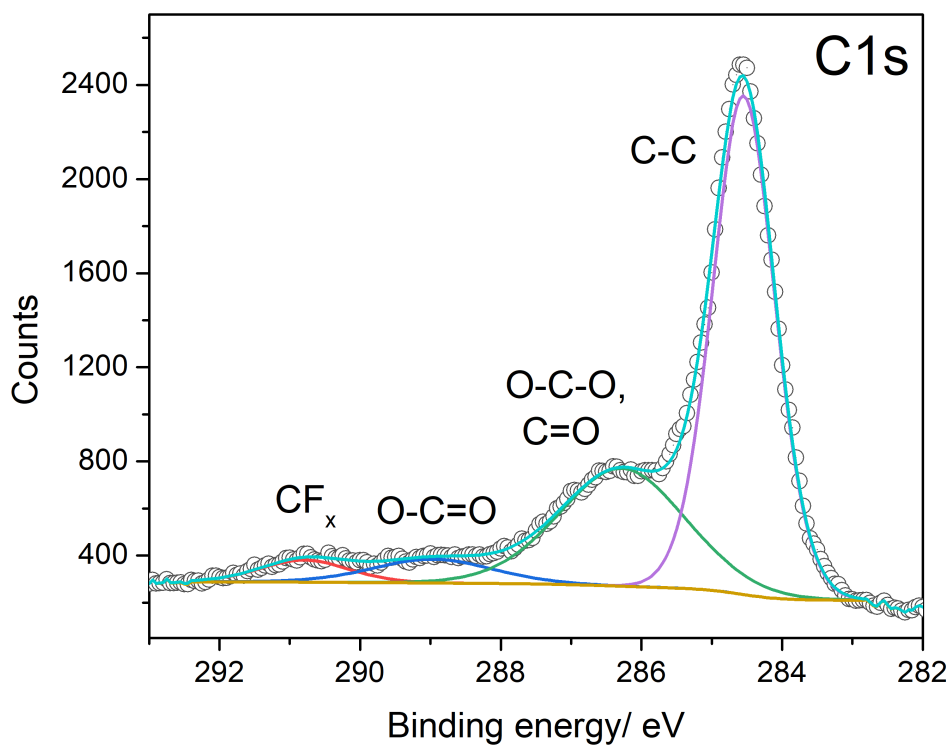


Figure S 7: C1s photoemission of charged $\text{Li}_x\text{V}_2\text{O}_5$.

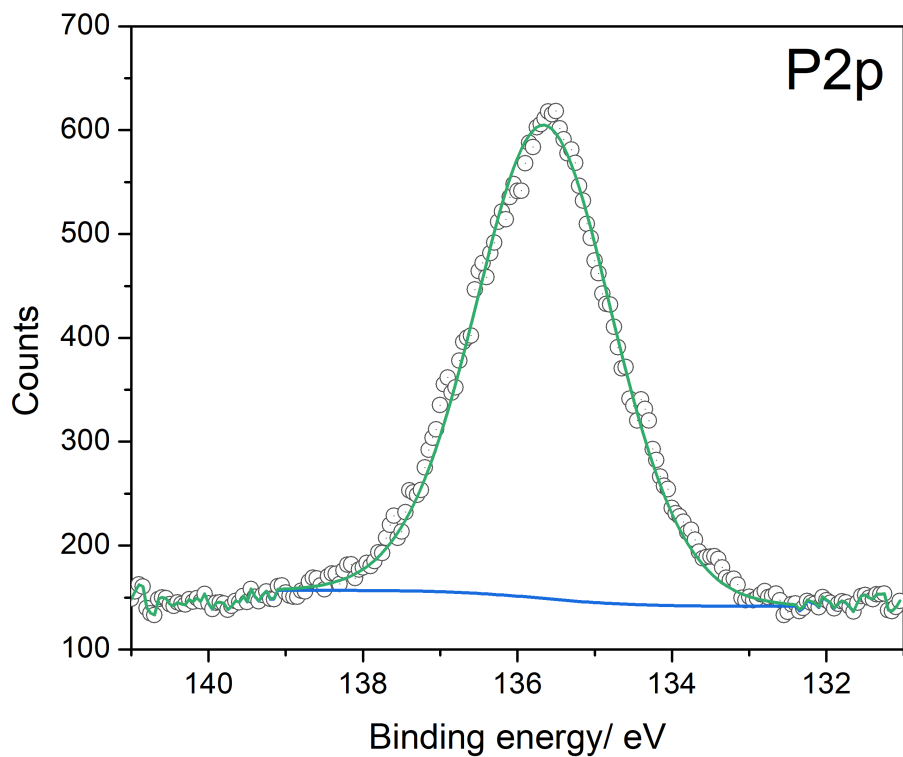


Figure S 8: P2p photoemission of charged $Li_xV_2O_5$.

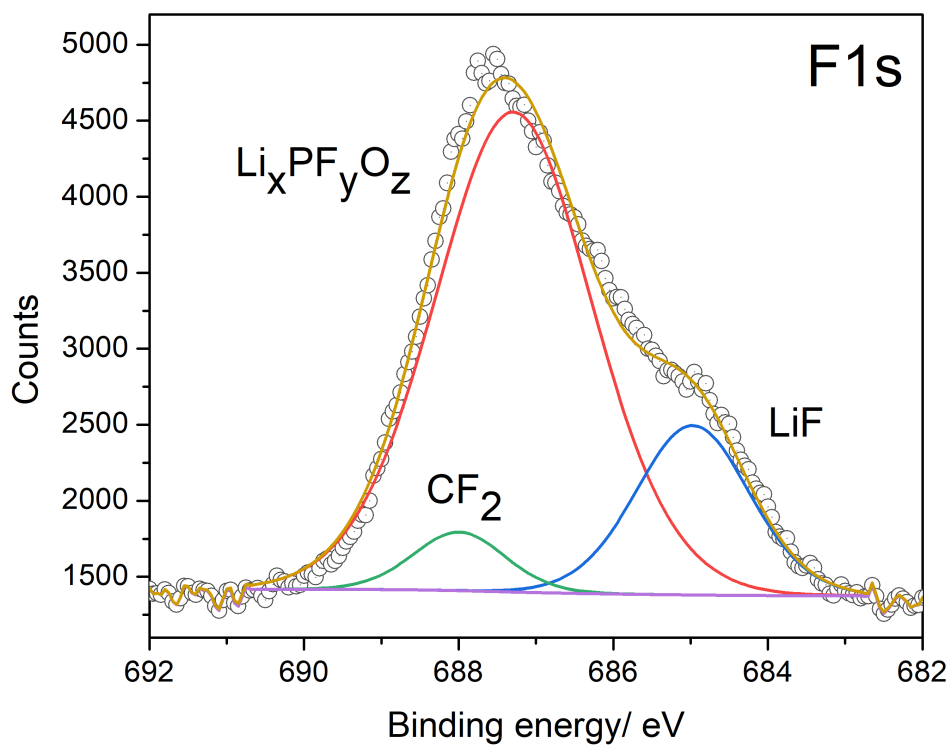


Figure S 9: F1s photoemission of charged $Li_xV_2O_5$.

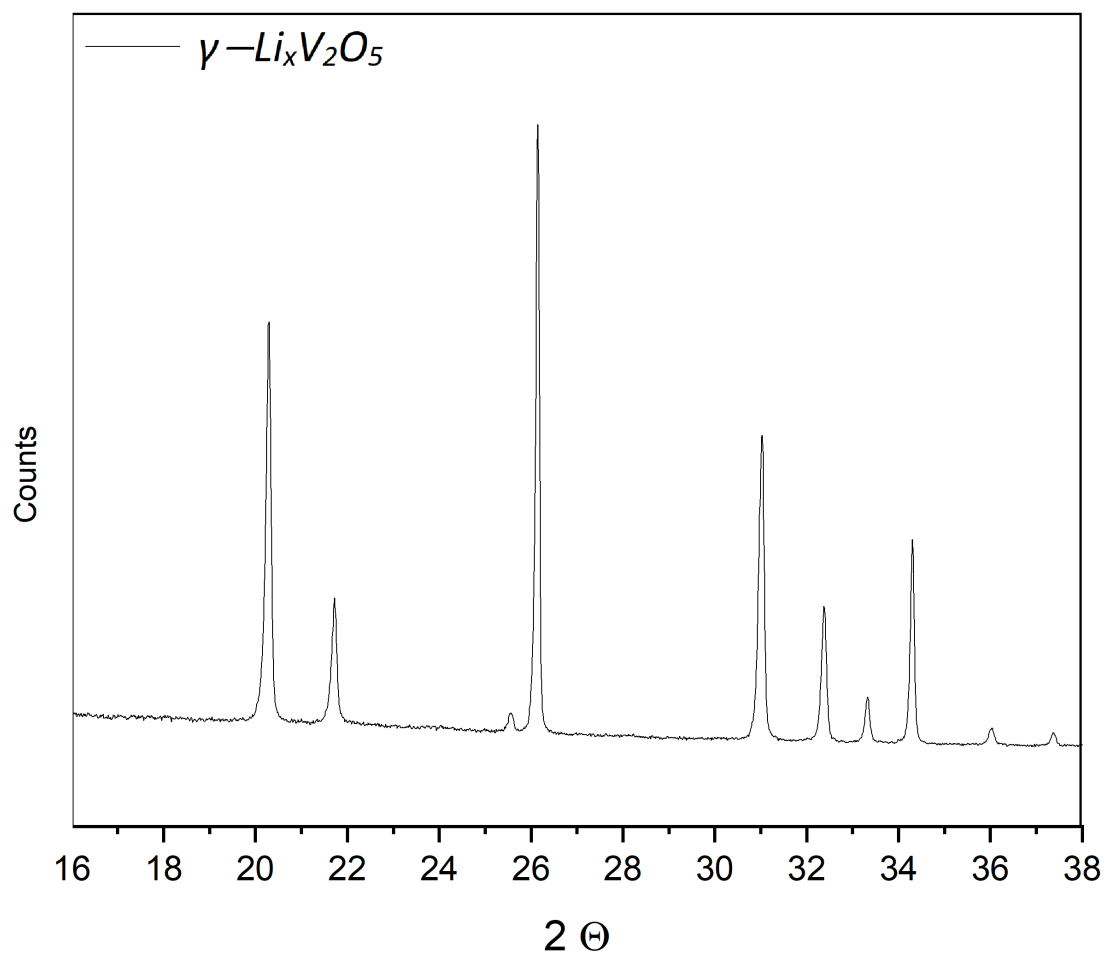


Figure S 10: Results from XRD analysis of the synthesized $\gamma - Li_xV_2O_5$.

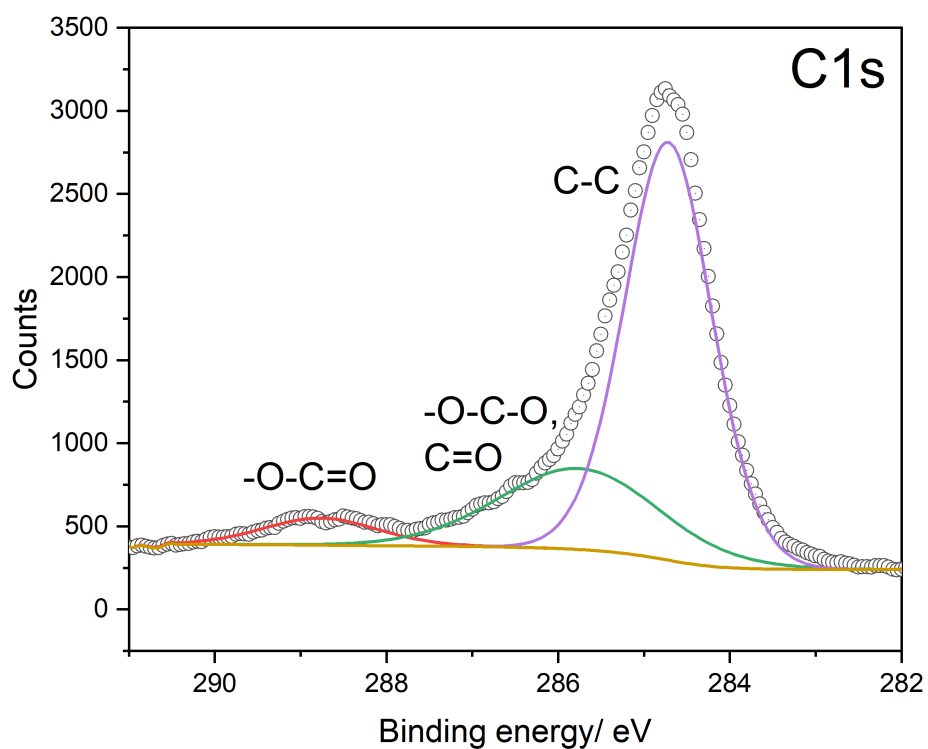


Figure S 11: C1s photoemission of uncharged $Li_xV_2O_5$.

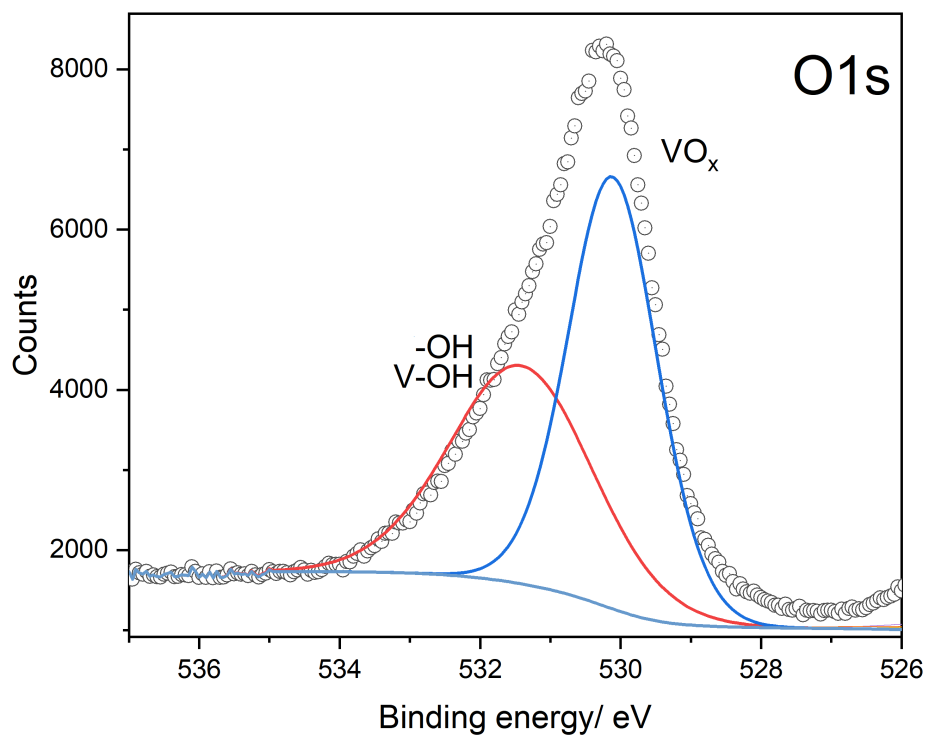


Figure S 12: O1s photoemission of uncharged $Li_xV_2O_5$.

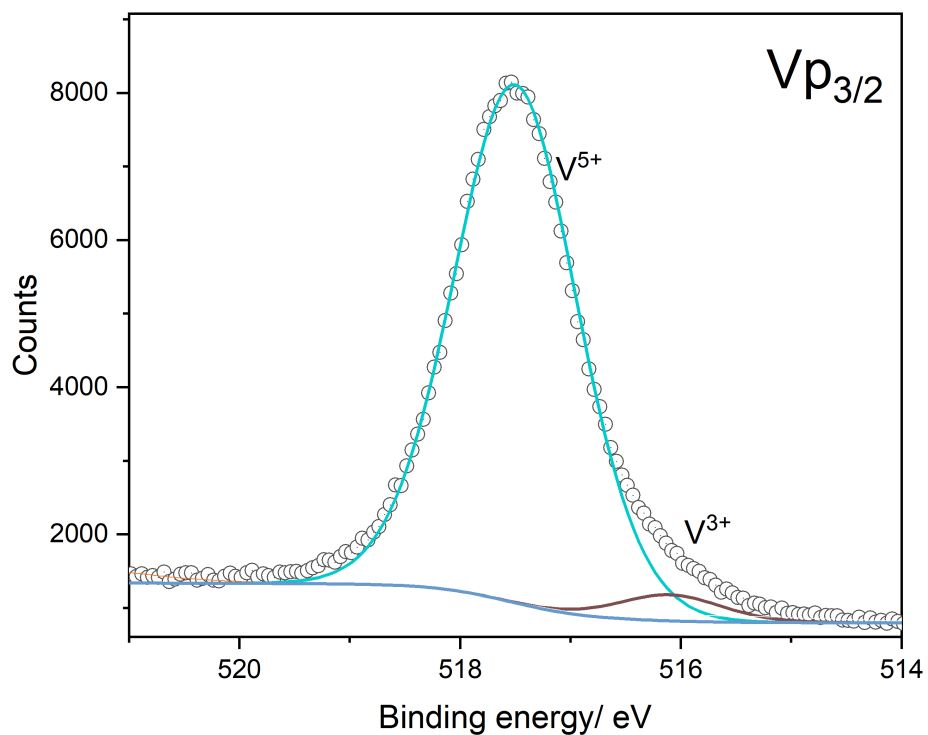


Figure S 13: $VP_{3/2}$ photoemission of uncharged $Li_xV_2O_5$.

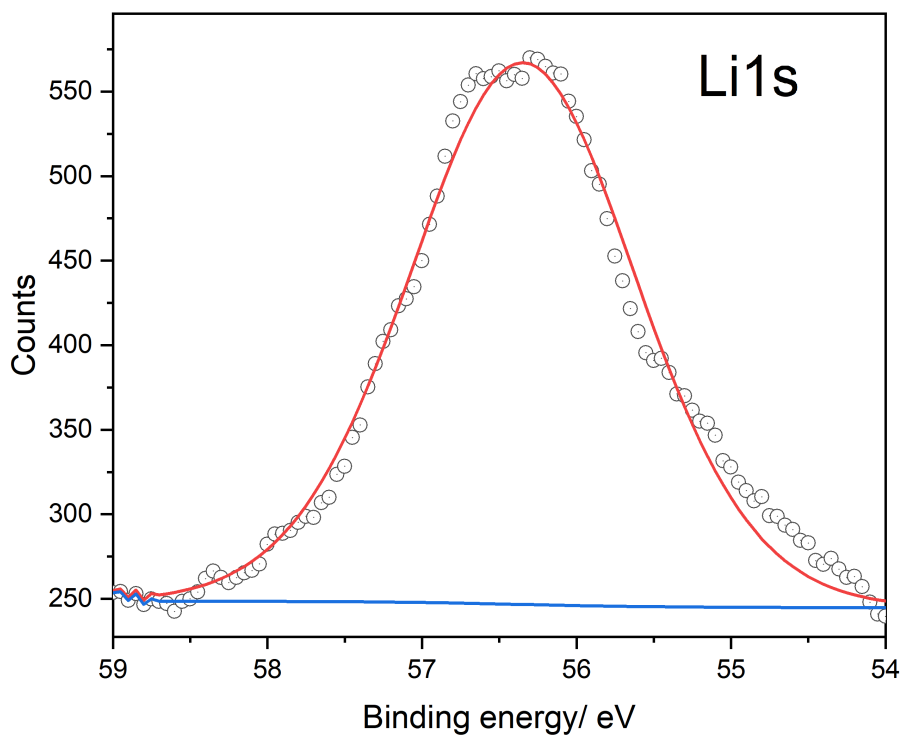


Figure S 14: Li1s photoemission of uncharged $Li_xV_2O_5$.