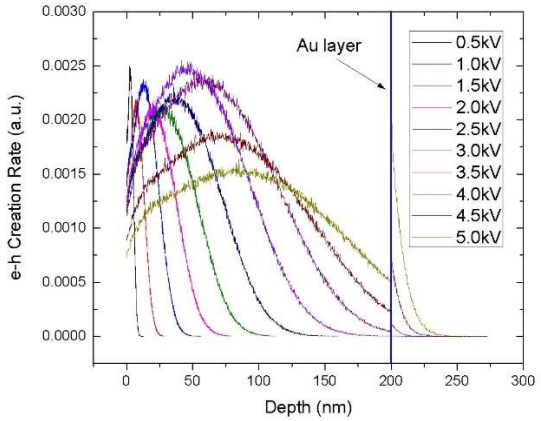

Figure 1. Rate of electron-hole pair creation in V_2O_5 vs. incident electron beam voltages E_B from 0.5 – 5 kV. Excitation confined within 200 nm film on Au substrate for E_B <3.5 kV.

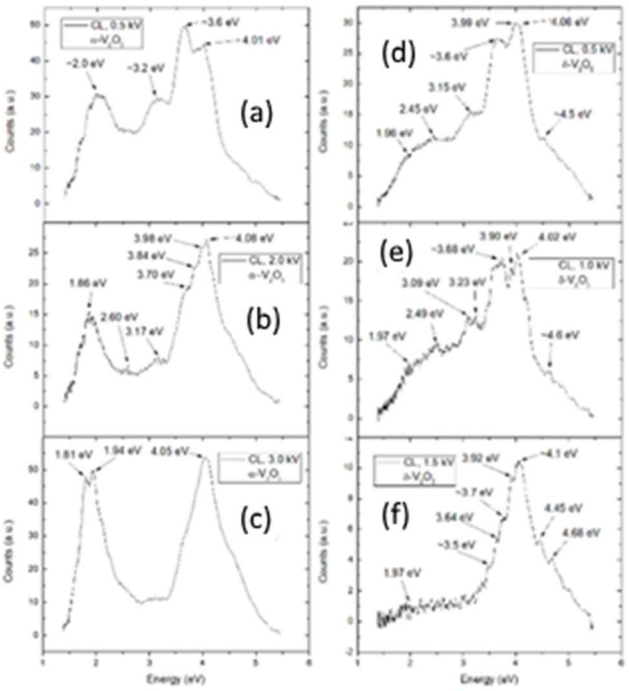

Figure 2. DRCLS spectra of α- (left) and δ-V_2O_5 (right) with increasing incident beam energy (α: E_B = 0.5, 2.0 and 3.0 kV; δ: E_B=0.5, 1.0, 1.5 kV) depths corresponding to <10, 60, and 120 nm and <10, 20, 40 nm excitation depths, respectively. 1.8-2 eV split-off band triplet changes with depth in relative amplitude and energy for α- V_2O_5.Lithiation removes split-off band and introduces 2.4 V_{3d} t_{2g} band for δ-V_2O_5.

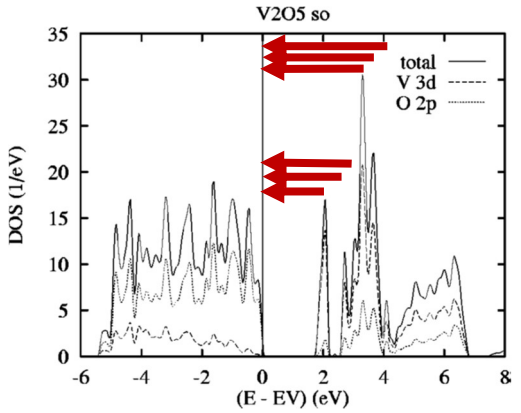

Figure 3. Eyert/Höck DFT densities of states[1] and DRCLS transitions.

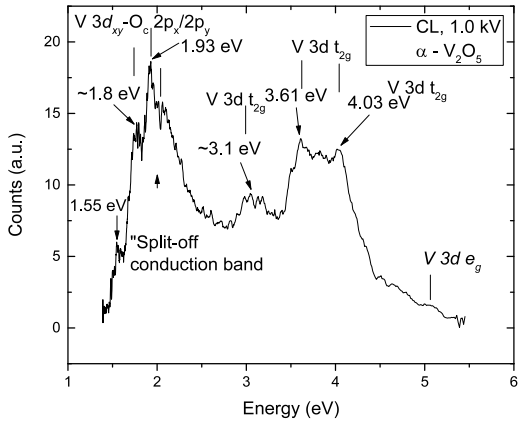

Figure 4. α-V_2O_5 peak identification with total density of DFT conduction band states.[1]

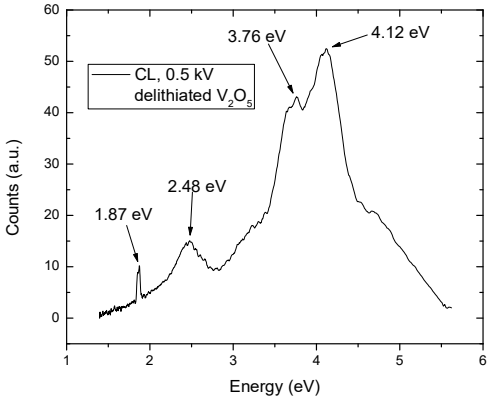

Figure 5. DRCL spectrum of delithiated V_2O_5, 0.5 kV electron beam energy. Delithiated V_2O_5 is $Li_xV_2O_5$ with x nearly zero. A significantly narrowed split-off band reappears.

1. V. Eyert and K.-H. Höck, "Electronic structure of V2O5: Role of octahedral deformation," Phys. Rev. B 57, 12727 (1998).