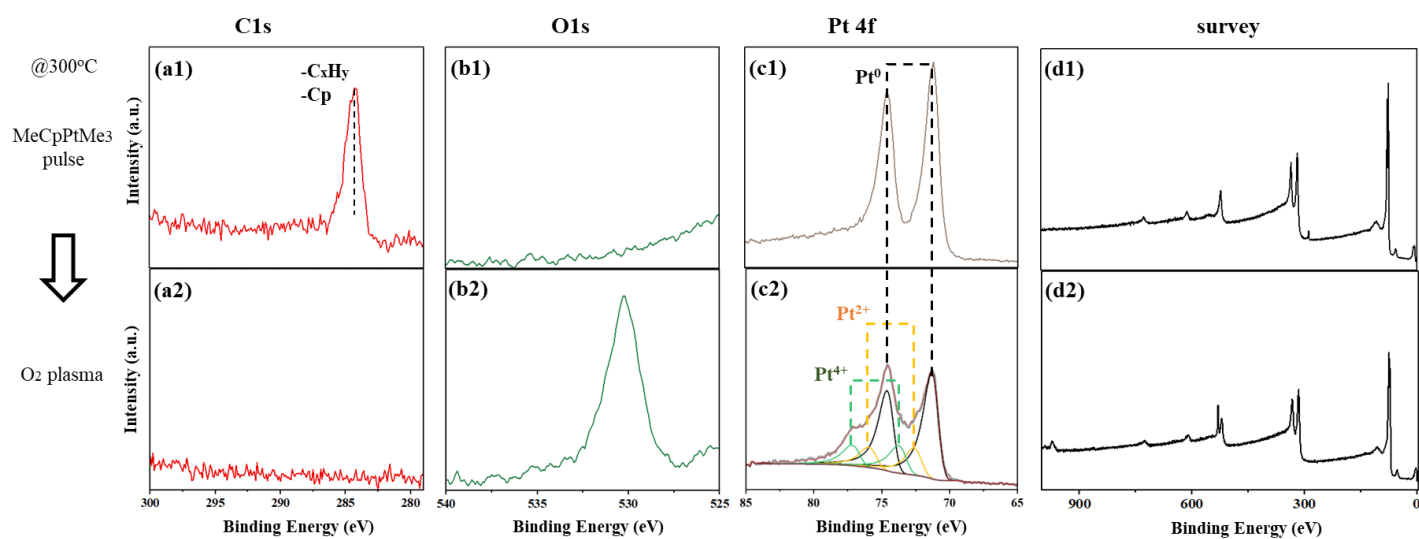
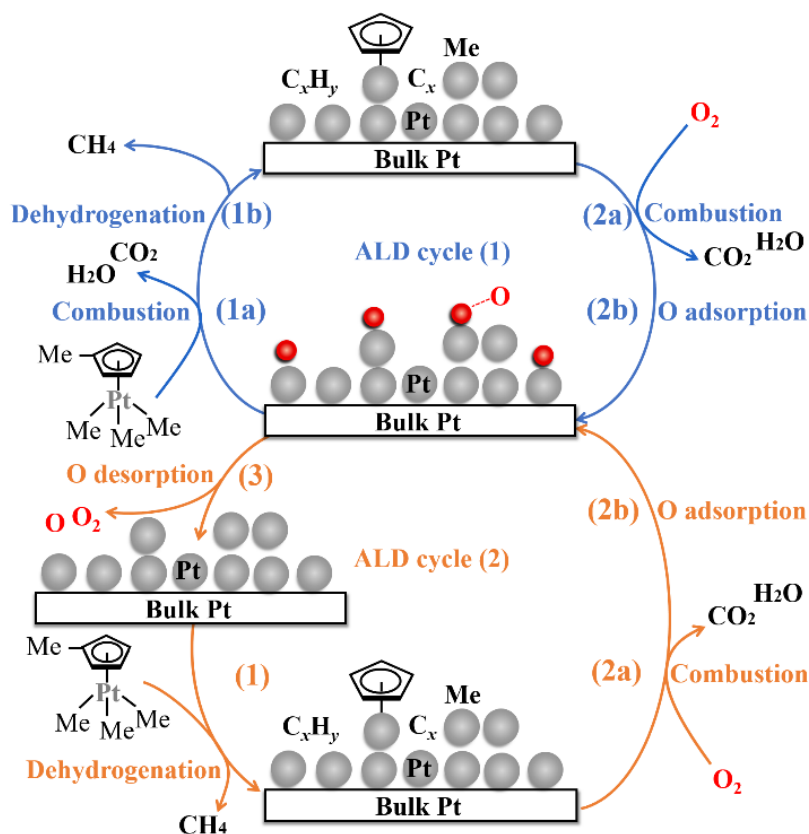


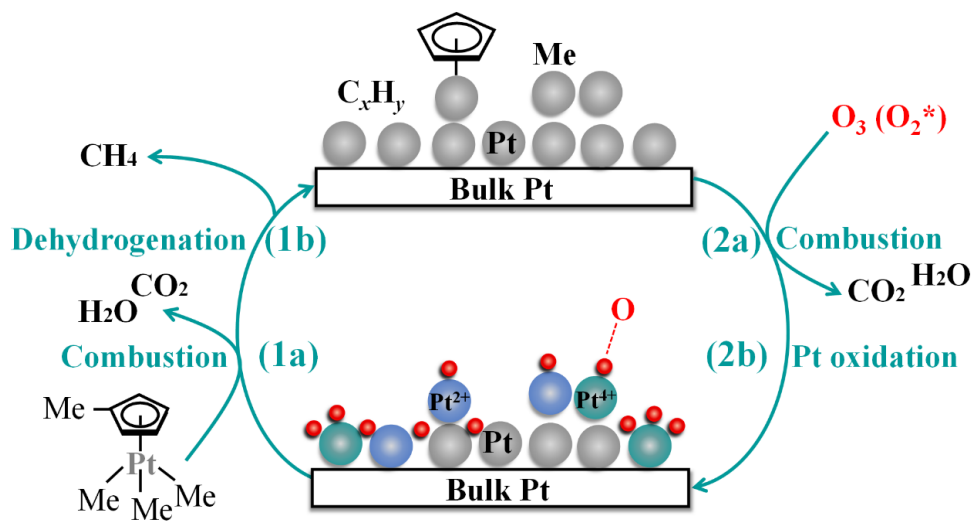
**Figure S1.** XPS core level scan of (a) C 1s, (b) O 1s, (c) Pt 4f and (d) survey scan taken on the Pt growth surface for the MeCpPtMe<sub>3</sub>/O<sub>2</sub> process at 300°C, after the MeCpPtMe<sub>3</sub> pulse (1) and after the O<sub>2</sub> pulse (2).



**Figure S2.** XPS core level scan of (a) C 1s, (b) O 1s, (c) Pt 4f and (d) survey scan taken on the Pt growth surface for the MeCpPtMe<sub>3</sub>/O<sub>2</sub>\* process at 300°C, after the MeCpPtMe<sub>3</sub> pulse (1) and after O<sub>2</sub>\* pulse (2).



**Figure S3.** Growth mechanisms proposed for the MeCpPtMe<sub>3</sub>/O<sub>2</sub> process. ALD cycle (1) and (2) indicate the standard process and the 3-step process with 50 min. waiting after O<sub>2</sub> step to remove surface O species.



**Figure S4.** Growth mechanisms proposed for the MeCpPtMe<sub>3</sub> and O<sub>3</sub>(O<sub>2</sub><sup>\*</sup>) based process.