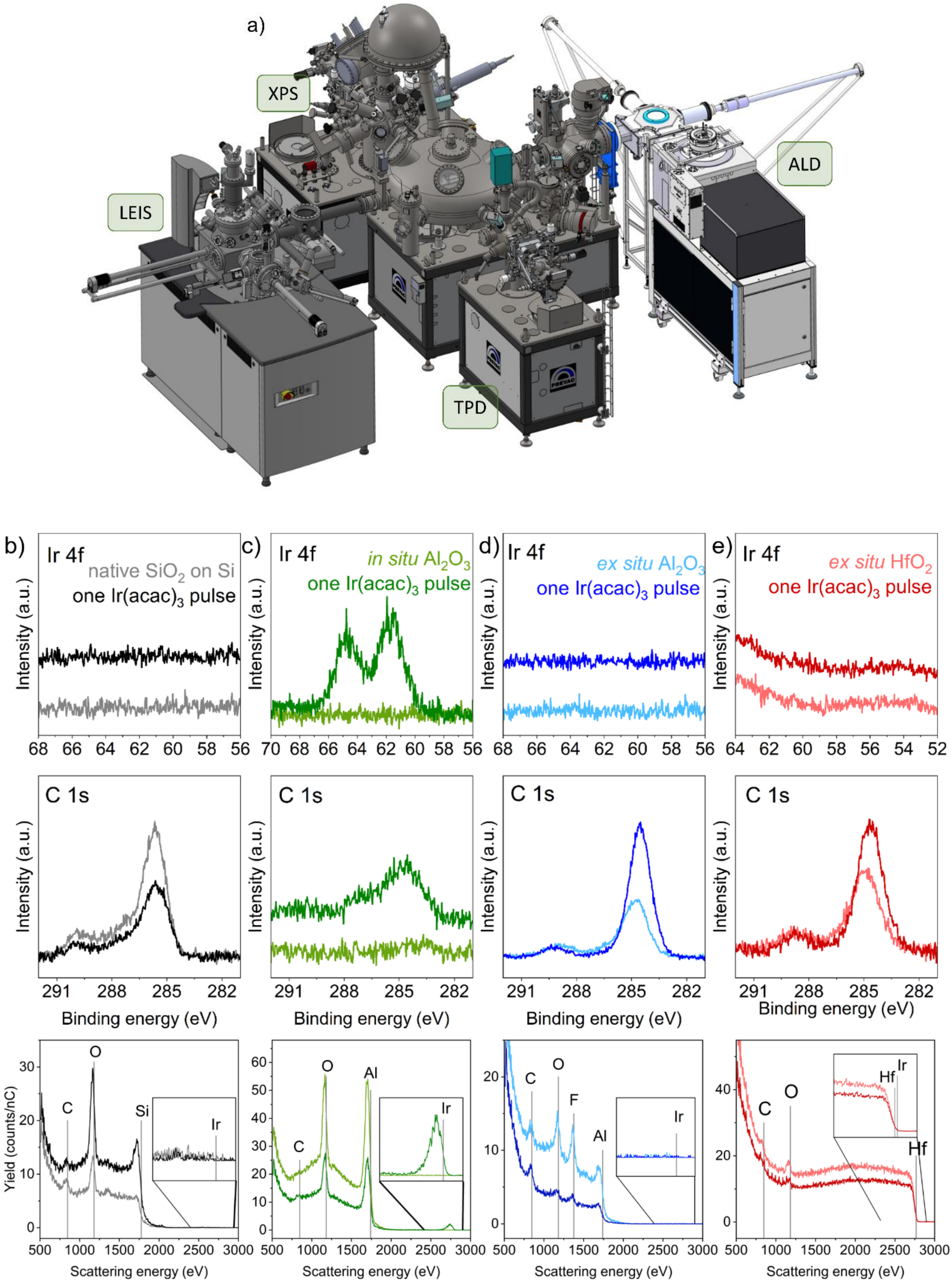

Figure 1. a) The ALD-UHV cluster tool. *In vacuo* XPS measurements on Ir 4f (top row) and C 1s (middle row) regions, and *in vacuo* LEIS measurements (bottom row) before and after the first Ir(acac)$_3$ pulse on b) native SiO$_2$ terminated Si, c) *in situ* Al$_2$O$_3$, d) *ex situ* Al$_2$O$_3$ and e) *ex situ* HfO$_2$. The lighter color is always the substrate before dosing.