Supplementary Information (SI) for Physical Chemistry Chemical Physics.


# Supplementary material for the manuscript:

## Electron deficient oxygen species in highly OER active iridium anodes characterized by X-ray absorption and emission spectroscopy

We measured absorption at the O *K*-edges of rutile-type $IrO_2$ and amorphous-Ir-$O_x$ at the BACH beamline at Elettra to provide a high resolution reference, Figure A1. These measurements were performed in fluorescence yield mode to provide bulk sensitive information. The resonance at 529 eV at III in the amorphous-$IrO_x$ can be clearly distinguished from the 530 eV resonance at IV.

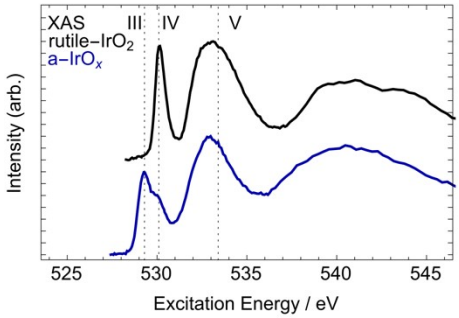


**Figure S1:** O *K*-edge XA spectrum measured in fluorescence yield at the BACH beamline. The spectra have been normalized at 546 eV.