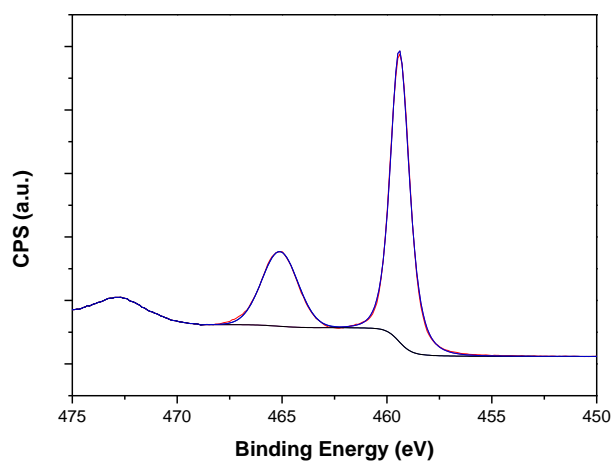
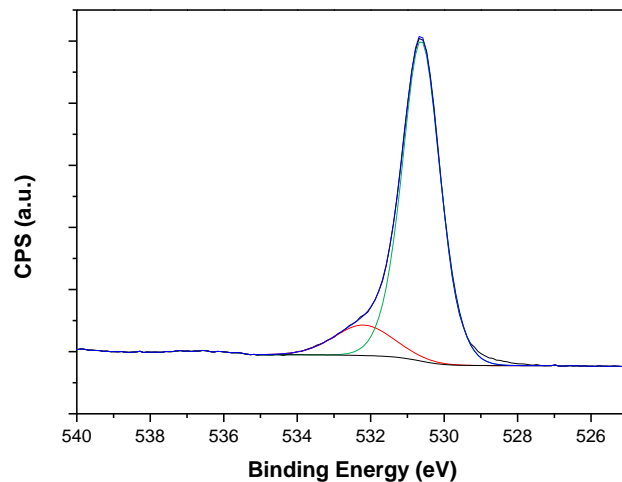


## Supplementary Information

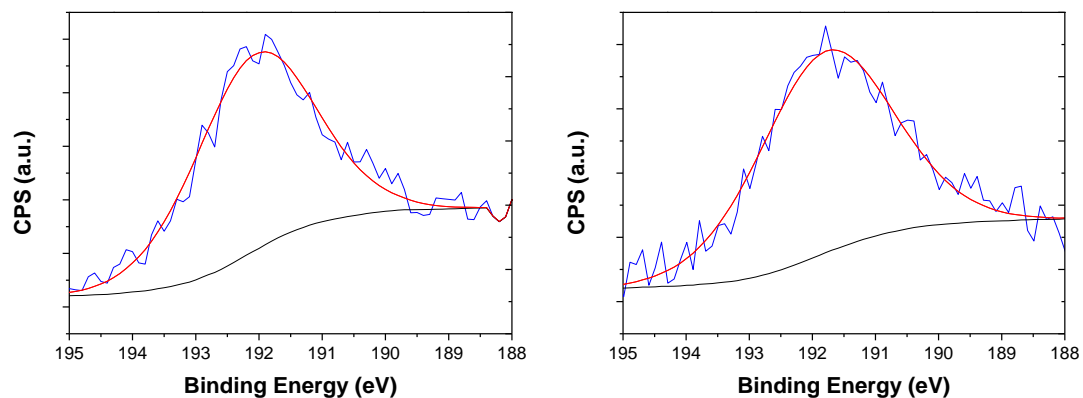


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Supplementary 1. Ti 2p XPS scan

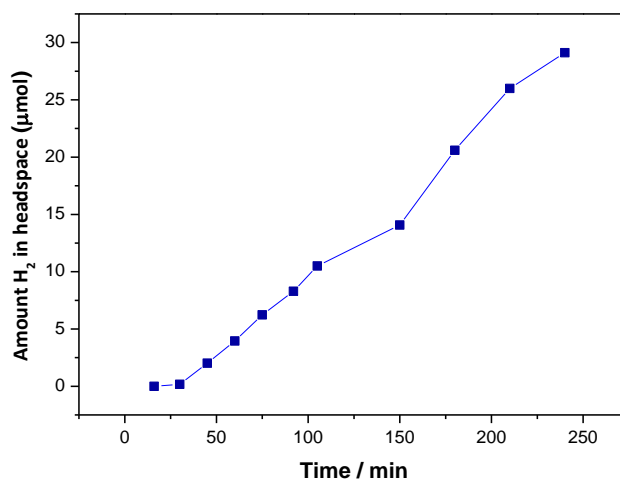


Supplementary 2. O 1s XPS scan, where the peak at lower binding energy is from TiO<sub>2</sub> and the small peak at ~532 eV can be attributed to organic contamination on the surface of the substrate

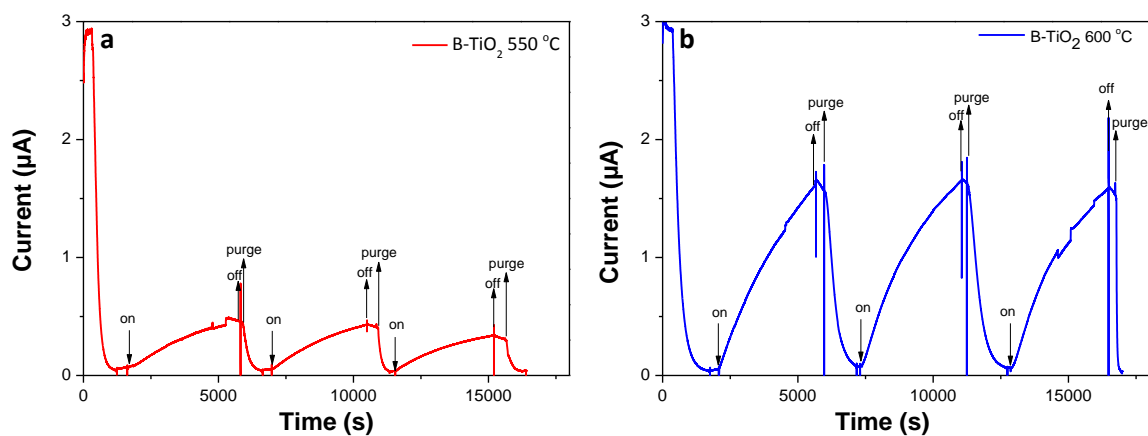


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Supplementary 3. B 1s XPS scans for boron doped TiO<sub>2</sub> deposited at 500 °C (left) and 600 °C (right)

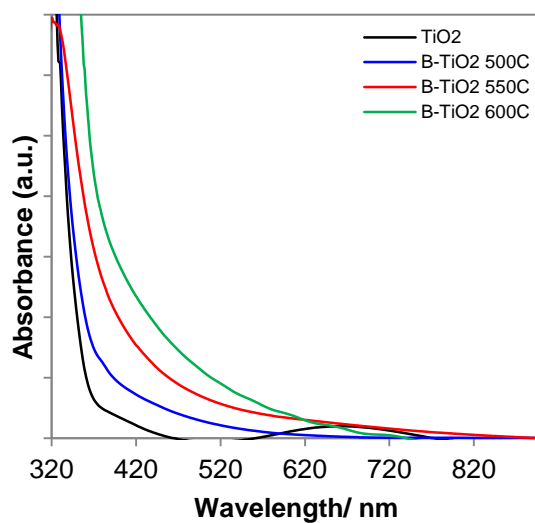


Supplementary 4. Sacrificial hydrogen evolution of best performing sample over a period of 4 hours



Supplementary 5. Sacrificial oxygen evolution of best performing B-TiO<sub>2</sub> deposited at a) 550 °C and b) 600 °C over three cycles with arrows indicating the light being turned on, off as well as the argon purge

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Supplementary 6. UV-vis of B-TiO<sub>2</sub> samples deposited on glass