

Description of Additional Supplementary Files

Supplementary Movie 1 : A movie showing the process of the binder-free Ru/TiO_x electrode working directly as an anode for water electrolysis in 0.5 M H₂SO₄ at different current densities.

Supplementary Movie 2 : A movie showing that the Ru/TiO_x electrode working directly as an anode for untreated seawater electrolysis at 100 mA cm⁻².