

Iron and Nitrogen co-doped Titania Matrix Supported Pt for Enhanced Oxygen Reduction Activity in Polymer Electrolyte Fuel Cells

P. Dhanasekaran^a, S. Vinod Selvaganesh^a, V.V. Giridhar^a, Santoshkumar D. Bhat^{a,*}

^aCSIR-Central Electrochemical Research Institute-Madras Unit, CSIR Madras Complex, Chennai-600 113, India

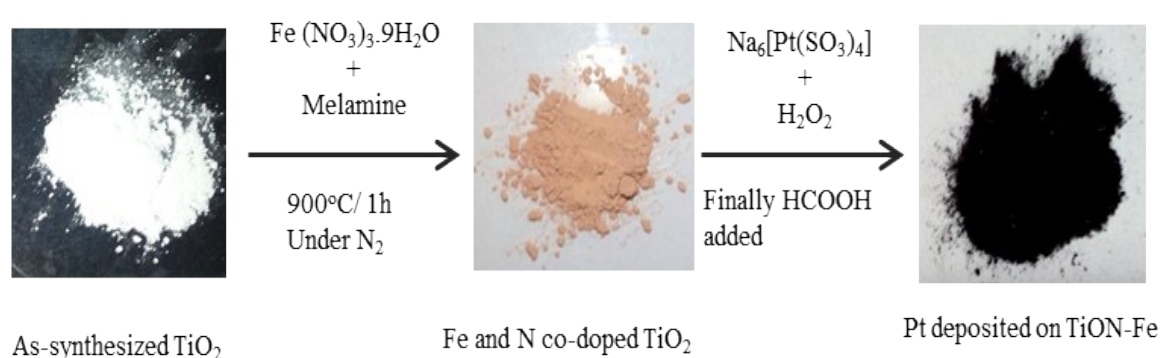


Fig. 1S: Various stages with color changes of preparation of TiON-Fe matrix followed by Pt deposition of TiON-Fe matrix by colloidal method.

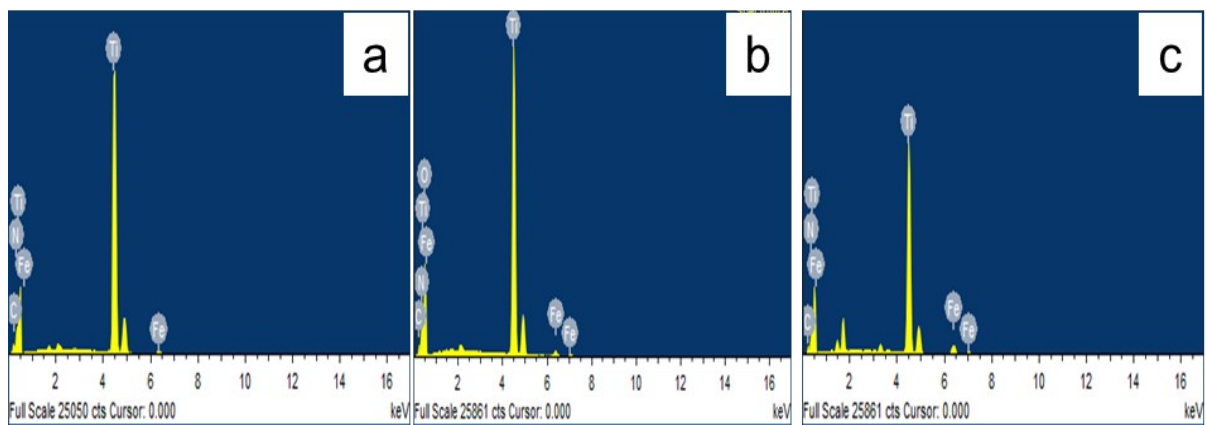


Fig 2S. EDX result for (a) TiON-Fe 1, (b) TiON-Fe 3 and (c) TiON-Fe 4 matrix.

Table: Shows the XRD refinement data for TiO₂ and Fe and N co-doped TiO₂ matrix comparison.

Materials	XRD lattice parameter (Å)			V (volume) Å ³
	A	B	C	
HT-TiO ₂	4.616	4.616	2.951	62.38
TiON-Fe 1	4.610	4.610	2.956	62.40
TiON-Fe 2	4.591	4.591	2.961	62.41
TiON-Fe 4	4.593	4.593	2.961	62.41

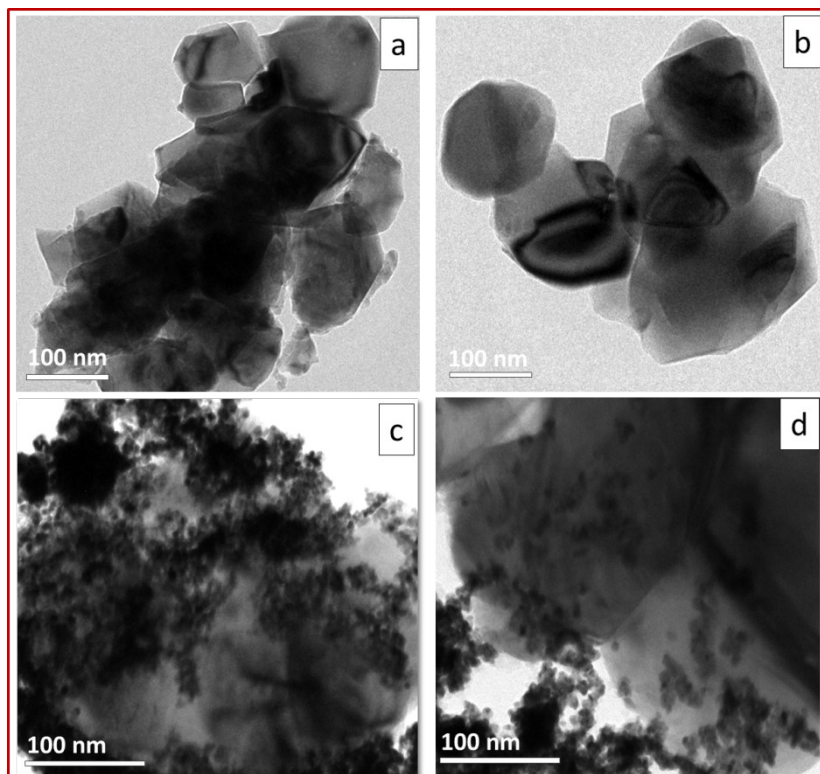


Fig 3S. HR-TEM image of (a) TiON-Fe 2, (b) TiON-Fe 5, (c) Pt/TiON-Fe 2 and (d) Pt/TiON-Fe 5 electrocatalysts.

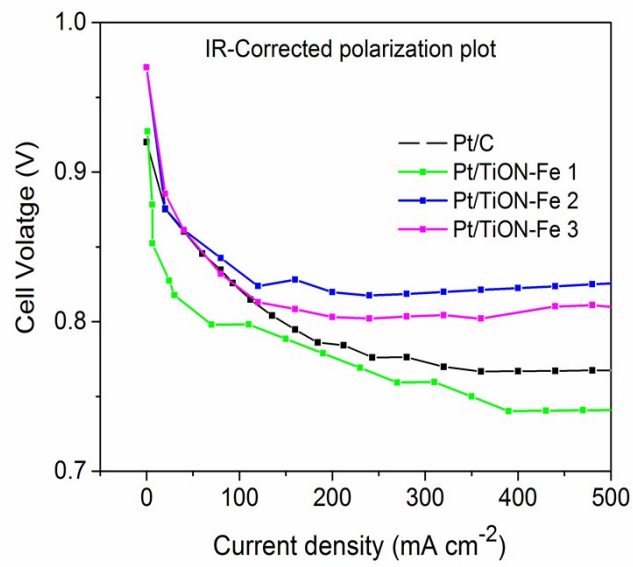


Fig 4S. IR-Corrected polarization data of Pt/C and Pt deposited on various content of doped Fe into TiON matrix

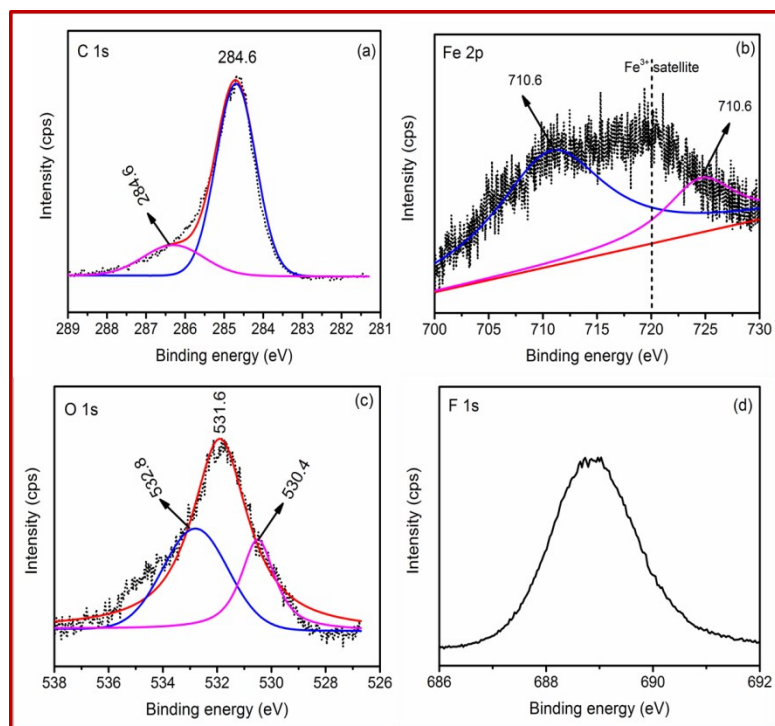


Fig. 5S XPS spectrum of after ADT for Pt/TiON-Fe cathode catalyst (a) C 1s, (b) Fe 2p, (c) O 1s and (d) F 1s Fluorine (from Nafion membrane).