

Tailored Polyoxometalate derived Ru-W/g-C₃N₄ based Electrocatalyst for Enhanced Hydrogen Evolution Reaction

Soyeb Pathan^{*a,b} Menon Ankitha^c Ajith Mohan Arjun^d Neermunda Shabana ^c Yongfeng Tong ^e
and P Abdul Rasheed^{*,c,d}

^aResearch and Development Cell (RDC), Parul Institute of Applied Sciences, Parul University, Waghodia, Vadodara, Gujarat, India-391760.

^bDepartment of Chemistry, Parul Institute of Applied Sciences, Parul University, Waghodia, Vadodara, Gujarat, India-391760.

^cDepartment of Chemistry, Indian Institute of Technology Palakkad, Palakkad, Kerala, India-678 557.

^dDepartment of Biological Sciences and Engineering, Indian Institute of Technology Palakkad, Palakkad, Kerala, India-678 557.

^eQatar Environment and Energy Research Institute, Hamad Bin Khalifa University, Doha, P.O. box 5825, Qatar.

^{*} (SP) Email: khan_9751@yahoo.com

^{*} (PAR) Email: abdulrasheed@iitpkd.ac.in

Supplementary Information

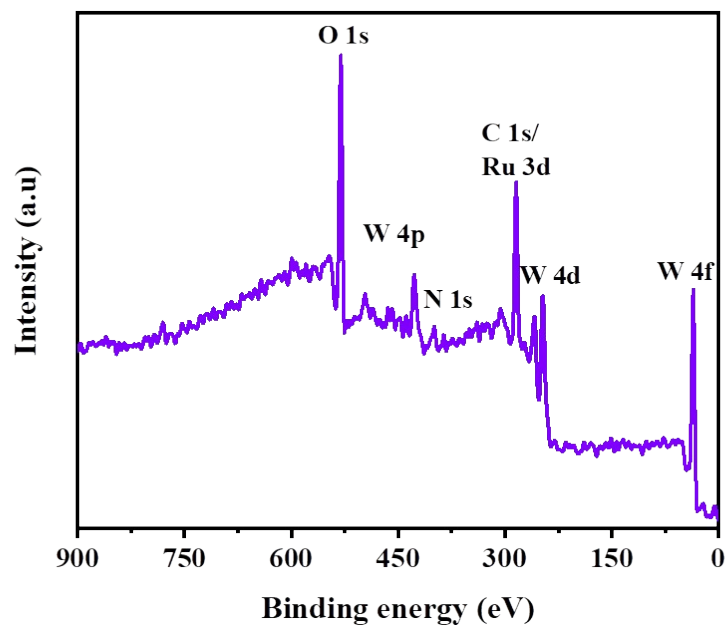


Fig S1. The XPS survey spectra of RuW/g-C₃N₄ composite.

Sample code	Element symbol and Wavelength (nm)	Weight of sample in gms / Volume in ml	Dilution Factor	Concn.in ppm $\mu\text{g/ml}$ (or) mg/litre
RuW/g-C ₃ N ₄	Ru 240.272	0.0250g/50ml	1	18.51 mg/L
	W 207.912	0.0250g/50ml	1	297.7 mg/L

Table S1. ICP analysis data of RuW/g-C₃N₄ composite

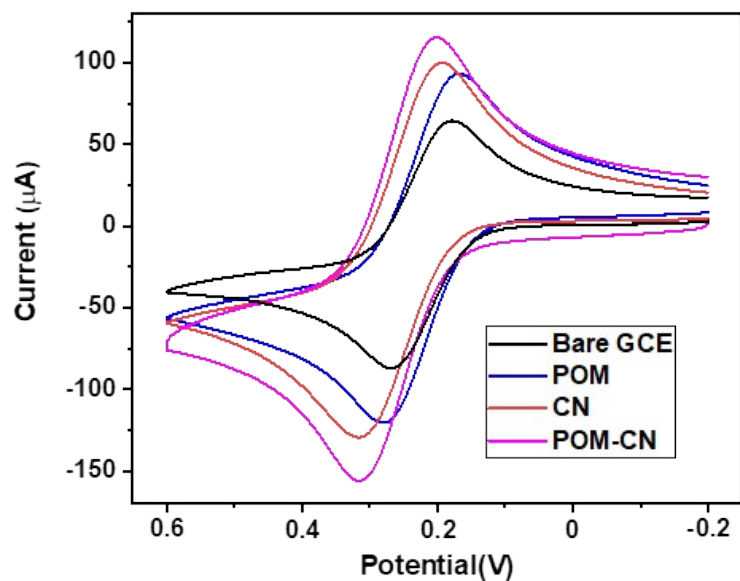


Fig. S2. Cyclic voltammogram of GCE modified with $PW_{11}Ru$, $g-C_3N_4$ and $RuW/g-C_3N_4$ composite. The analysis was done in the solution containing 0.1 M KCl with 10 mM $[Fe(CN)_6]^{3-}$ at a scan rate of 100 mVs^{-1} .

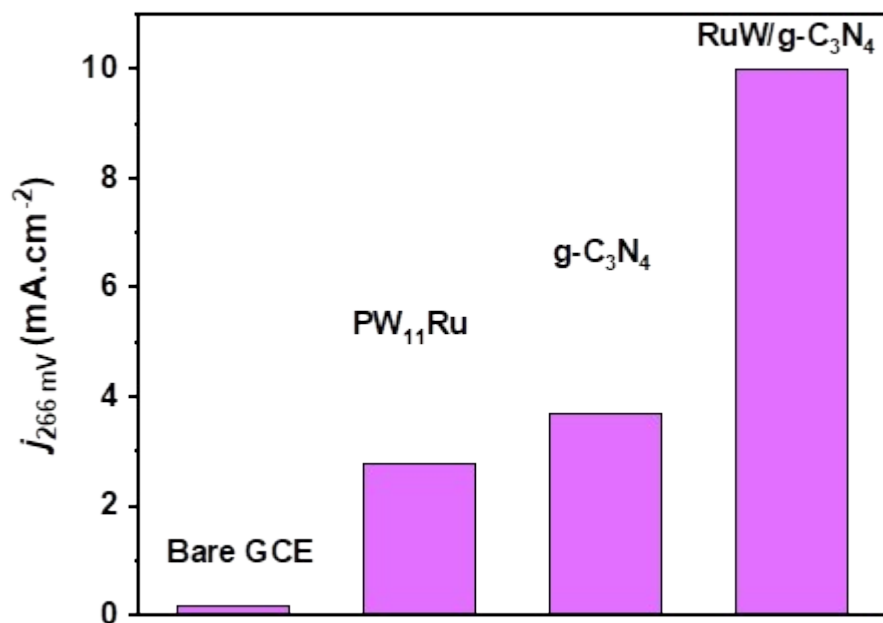


Fig. S3. Current density at 266 mV for $PW_{11}Ru$, $g-C_3N_4$ and $RuW/g-C_3N_4$ composite.

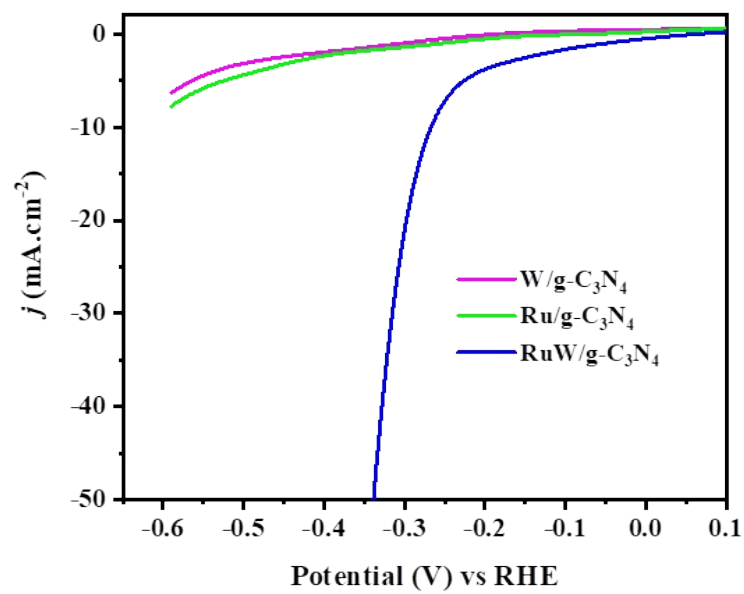


Fig. S4. HER polarization curve of Ru/g-C₃N₄ and W/g-C₃N₄ in comparison with RuW/g-C₃N₄ and Pt/C.