Supporting information:

for

Substantial enhancement in the photocatalytic degradation of organic/inorganic pollutants in water and photo-electrochemical activity using TiO_2@Ag@$LaFeO_3$ core-shell nanorod

Mrinmoy Misra[1*], Shambo Roy Chowdhury[1], Narinder Singh[2], Vanish Kumar[3], Sang-Wha Lee[4], Abhijit N. Kadam[4*]

[1]Mechatronics Engineering Department, School of Automobile, Mechanical and Mechatronics, Manipal University Jaipur, India.

Dr SS Bhatnagar University Institute of Chemical Engineering & Technology Panjab University, Chandigarh India 160014, India

[3]National Agri-Food Biotechnology Institute (NABI), S.A.S. Nagar, Punjab 140306, India

[4]Department of Chemical and Biological Engineering, Gachon University, 1342 Seongnamdaero, Sujeong-gu, Seongnam-si 13120, South Korea

Email id: mrinmoymishra@gmail.com (Mrinmoy Misra)

abhikadamchem@gmail.com (Abhijit N. Kadam)

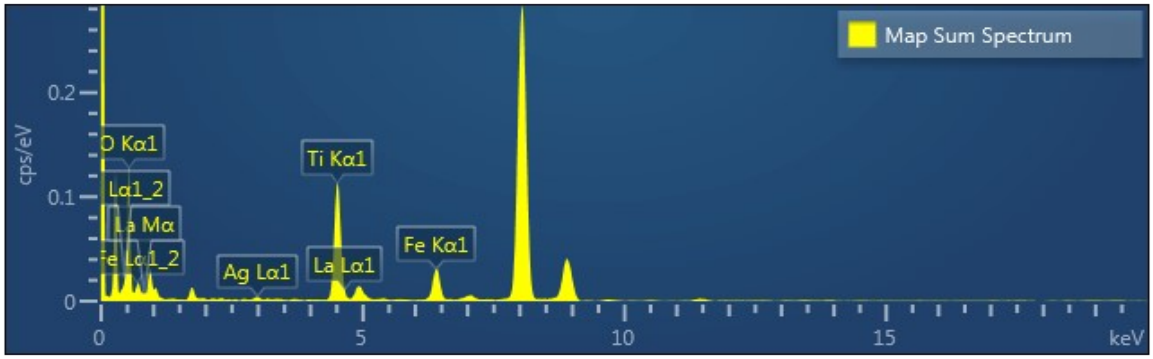

Figure S1. EDX analysis of TiO_2@Ag@$LaFeO_3$ NRs

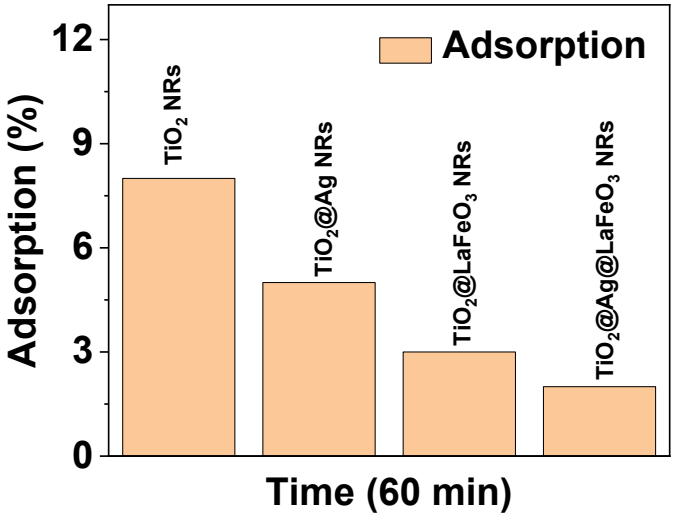

Figure S2. Adsorption of all the catalyst material

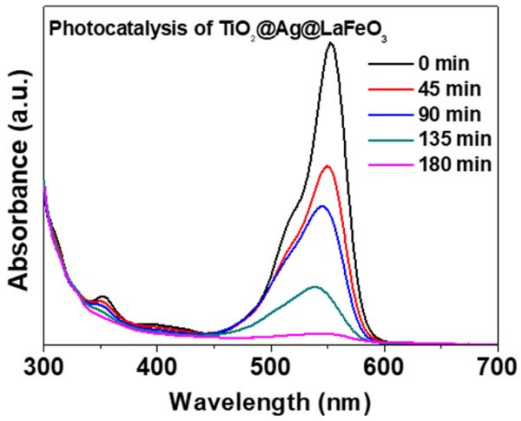

Figure S3. Time dependent photocatalytic activity of TiO_2@Ag@$LaFeO_3$ NRs under illumination of simulated light source.

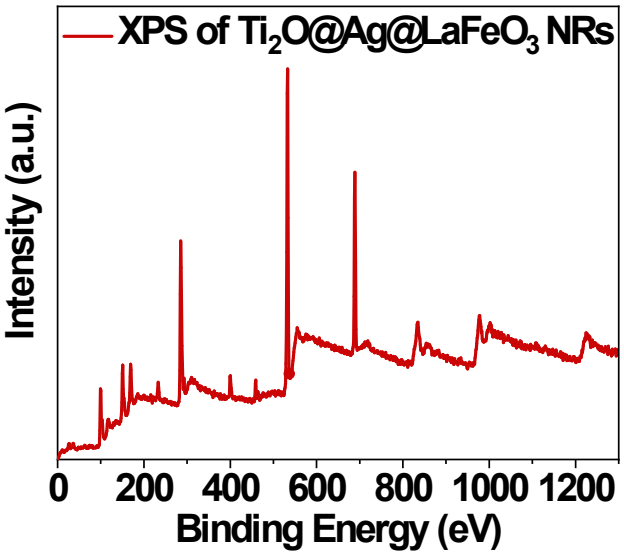

Figure S4. XPS survey spectrum of TiO_2@Ag@$LaFeO_3$ NRs after five times recycle.

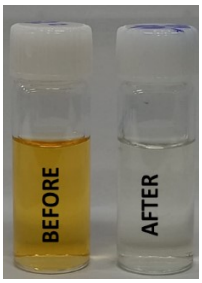

Figure S5. Image of MO dye before and after photocatalytic degradation using TiO_2@Ag@$LaFeO_3$ NRs under illumination of simulated light source.

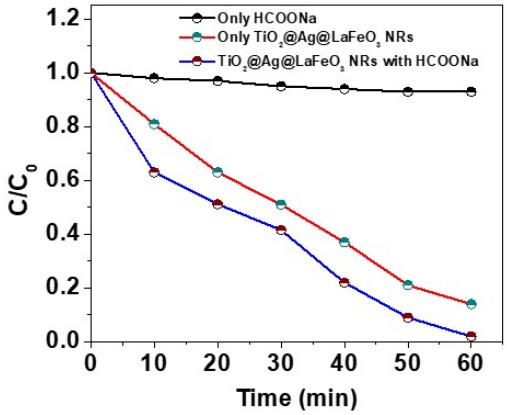

Figure S6. Photo catalytic reduction of Cu^{2+} using TiO_2@Ag@$LaFeO_3$ NRs under different experimental conditions

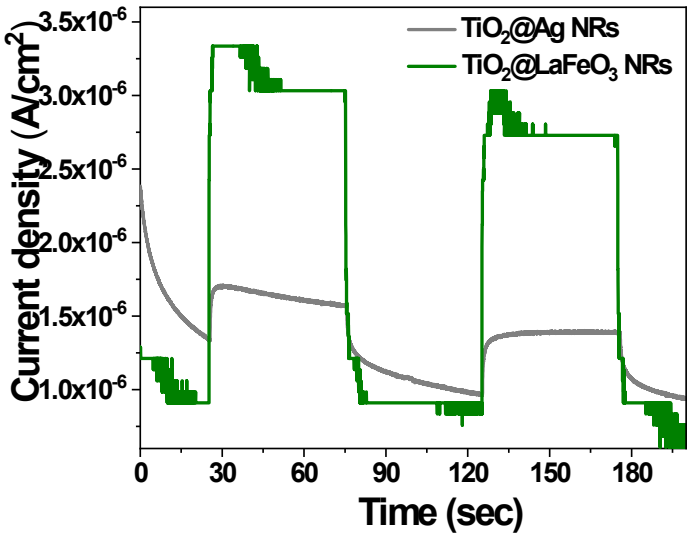

Figure S7. Photocurrent generation from TiO_2@Ag and TiO_2@ $LaFeO_3$ NRs

Table S1: Weight percentage and atomic percentage of every elements of TiO_2@Ag@$LaFeO_3$ NRs

Element	Line Type	k Factor	k Factor type	Absorption Correction	Wt%	Wt% Sigma	Atomic %
O	K series	1.213		1.00	39.77	2.12	69.20
Ti	K series	0.617		1.00	39.13	1.92	22.75
Fe	K series	0.591		1.00	12.36	0.94	6.16
Ag	L series	1.079		1.00	2.41	0.94	0.62
La	L series	1.156		1.00	6.33	2.48	1.27
Total:					100.00		100.00

Table S2: XPS binding energy data of TiO_2@Ag@$LaFeO_3$ NRs

Name	Start BE	Peak BE	End BE	Height CPS	FWHM eV	At. %
Ag3d	377.34	367.88	365.58	173.65	0.32	0.53
C1s	295.38	284.71	280.78	14591.54	1.6	57.22
Fe2p	733.38	710.55	703.18	241.19	0.75	0.44
La3d3	869.48	852.49	845.18	562.17	4.47	0.74
O1s	537.38	532.51	527.68	30487.38	1.96	39.97
Ti2p	467.98	458.61	454.48	2790.32	1.15	1.1