



Cite this: *Chem. Soc. Rev.*, 2022, **51**, 10120

Correction: Recent advances and perspectives for solar-driven water splitting using particulate photocatalysts

Xiaoping Tao,^a Yue Zhao,^a Shengyang Wang,^a Can Li^{ab} and Rengui Li^{*a}

DOI: 10.1039/d2cs90098j

Correction for 'Recent advances and perspectives for solar-driven water splitting using particulate photocatalysts' by Xiaoping Tao *et al.*, *Chem. Soc. Rev.*, 2022, **51**, 3561–3608, <https://doi.org/10.1039/d1cs01182k>.

rsc.li/chem-soc-rev

The authors regret that there were some errors in the references in Tables 1 and 2 in the original article. The corrected Tables 1 and 2 are presented here, and the additional references which should have been included (ref. 299–317) are provided below.

Table 1 Representative particulate one-step overall water-splitting systems

Photocatalyst	Absorption range/nm	Cocatalyst	Efficiency	Ref.
Ultraviolet light				
TiO ₂	<385 nm	Pt/RuO ₂	QE: 30 ± 10% at 310 nm	299
SrTiO ₃ :Al	<390 nm	Rh/Cr ₂ O ₃ /CoOOH	AQE: 95.7% at 350 nm, 95.9% at 360 nm, 91.6% at 365 nm STH: 0.65%	179
La ₂ Ti ₂ O ₇ :Ba	<385 nm	NiO _x	QE: 35% (<360 nm)	300
Sr ₂ Nb ₂ O ₇	<300 nm	Ni	QE: 23% (<300 nm)	301
NaTaO ₃ :La	<300 nm	NiO	AQE: 56% at 270 nm	84
Ga ₂ O ₃ :Zn	<280 nm	Rh _{2–3} Cr _y O ₃	AQY: 71% at 254 nm	302
Polytriazine imides	<400 nm	Pt/Co	AQY: 7.9% at 365 nm, 6.2% at 380 nm, 0.26% at 405 nm	268
Visible light				
(Zn _{0.12} Ga _{0.88})(N _{0.88} O _{0.12})	<475 nm	Rh _{2–3} Cr _y O ₃	AQE: 5.9% at 420–440 nm	264
GaN:Mg/InGaN:Mg	<475 nm	Rh/Cr ₂ O ₃	AQE: 12.3% at 400–475 nm, STH: 1.8%	303
ZrO ₂ /TaON	<495 nm	RuO _x /Cr ₂ O ₃ /IrO ₂	AQE: <0.1% at 420 nm	304
LaMg _{1/3} Ta _{2/3} O ₂ N	<600 nm	Rh _{2–3} Cr _y O ₃ /TiO ₂ /SiO ₂	AQE: 0.18% at 440 ± 30 nm	243
Ta ₃ N ₅	<590 nm	Rh/Cr ₂ O ₃	AQE: 2.2% at 320 nm, 0.22% at 420 nm, 0.024% at 500 nm, STH: 0.014%	85
BiYWO ₆	<470 nm	RuO ₂	AQE: 0.17% at 420 nm	305
BiVO ₄ :In,Mo	<496 nm	RuO ₂	AQE: 3.2% at 420–800 nm	306
Y ₂ Ti ₂ O ₅ S ₂	<650 nm	Rh/Cr ₂ O ₃ /IrO ₂	AQE: 0.36% at 420 nm, 0.23% at 500 nm, 0.05% at 600 nm, STH: 0.007%	50
g-C ₃ N ₄	<440 nm	Pt/CoO _x	AQE: 0.3% at 405 nm	267
g-C ₃ N ₄ (nanosheet)	<410 nm	Co ₁ -phosphide	QE: 3.6% at 420 nm, 2.2% at 500 nm and 0.35% at 580 nm	307
CDots-C ₃ N ₄	<620 nm		AQE: 16% at 420 nm, STH: 2%	308

There was also a minor error in Fig. 3, where the vertical axis should have been labelled “Potential/*vs.* NHE (pH = 0)”. The corrected Fig. 3 is also presented here.

^a State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian National Laboratory for Clean Energy, Zhongshan Road 457, Dalian, 116023, China. E-mail: rgli@dicp.ac.cn

^b University of Chinese Academy of Sciences, China



Table 2 Representative particulate Z-scheme overall water-splitting systems

HEP	OEP	Electron mediator	Efficiency	Ref.
Soluble electron mediator				
Pt/SrTiO ₃ (Cr,Ta) (<700 nm)	PtO _x /WO ₃ (<450 nm)	IO ₃ ⁻ /I ⁻	AQE: 0.1% at 420 nm	271
Pt/ZrO ₂ /TaON (<500 nm)	PtO _x /WO ₃ (<600 nm)	IO ₃ ⁻ /I ⁻	AQE: 6.3% at 420 nm	273
Pt/MgTa ₂ O _{6-x} N _y /TaON (<570 nm)	PtO _x /WO ₃ (<600 nm)	IO ₃ ⁻ /I ⁻	AQE: 6.8% at 420 nm	274
IrO ₂ /Sm ₂ Ti ₂ S ₂ O ₅ (<590 nm); Pt/La ₅ Ti ₂ CuS ₅ O ₇ (<650 nm); Rh/La ₆ Ti ₂ S ₈ O ₅ (<630 nm)	PtO _x /H-Cs-WO ₃ (<450 nm)	I ₃ ⁻ /I ⁻	STH: 0.003%	309
Dye-adsorbed Pt/H ₄ Nb ₆ O ₁₇ (<700 nm)	IrO ₂ /PtO _x /WO ₃ (<450 nm)	I ₃ ⁻ /I ⁻	AQE: 0.05% at 480 nm	310
Ru/SrTiO ₃ :Rh (<520 nm)	BiVO ₄ (<520 nm)	Fe ³⁺ /Fe ²⁺	AQE: 4.2% at 420 nm, STH: 0.1%	311
Ru/SrTiO ₃ :Rh (<520 nm)	Bi ₄ NbO ₈ Cl (<498 nm)	Fe ³⁺ /Fe ²⁺	AQE: 0.4% at 420 nm	76
Rh _y Cr _{2-y} O ₃ /ZrO ₂ /TaON (<530 nm)	Ir-FeCoO _x /BiVO ₄ (<530 nm)	[Fe(CN) ₆] ^{3-/4-}	AQE: 12.3% at 420 ± 10 nm, STH: 0.6%	275 and 298
Pt/SrTiO ₃ :Rh (<520 nm)	BiVO ₄ (<520 nm)	[Co(bpy) ₃] ^{3+/2+} or [Co(phen) ₃] ^{3+/2+}	AQE: 2.1% at 420 nm	312
0.5 wt% Ru/SrTiO ₃ :Rh (<520 nm)	Photosystem II (400–520 and 600–700 nm)	[Fe(CN) ₆] ^{3-/4-}	STH: 0.012%	282 and 313
Ru/SrTiO ₃ :Rh (<520 nm)	PtO _x /WO ₃ (<450 nm)	[SiW ₁₁ O ₃₉ Mn ^{III} (H ₂ O)] ⁵⁻ / [SiW ₁₁ O ₃₉ Mn ^{II} (H ₂ O)] ⁶⁻	AQE: 0.24% at 400 nm (H ₂ evolution) AQE: 0.36% at 400 nm (O ₂ evolution)	314
Solid-state electron mediator				
Ru/SrTiO ₃ :Rh (<520 nm)	BiVO ₄ (<520 nm)	None	AQE: 1.7% at 420 nm, STH: 0.12%	277
Pt/g-C ₃ N ₄ (nanosheet) (<450 nm)	Co(OH) ₂ /B doped g-C ₃ N ₄ (nanosheet) (<900 nm)	None	STH: 1.16%	276
Ru/SrTiO ₃ :La,Rh (<520 nm)	CoO _x /Ta ₃ N ₅ (<600 nm)	Ir	AQE: 1.1% at 420 nm, STH: 0.037%	315
Ru/SrTiO ₃ :Rh (<520 nm)	BiVO ₄ (<520 nm)	RGO	AQE: 1.03% at 420 nm	316
ZnRh ₂ O ₄ (<1030 nm)	Bi ₄ V ₂ O ₁₁ (<750 nm)	Ag	AQE: ~0.003% at 740 nm	317
Pt/TiO ₂ /CdS/(ZnSe) _{0.5} (CuGa _{2.5} Se _{4.25}) _{0.5} (<720 nm)	BiVO ₄ :Mo (<520 nm)	Au	AQE: 1.5% at 420 nm	281

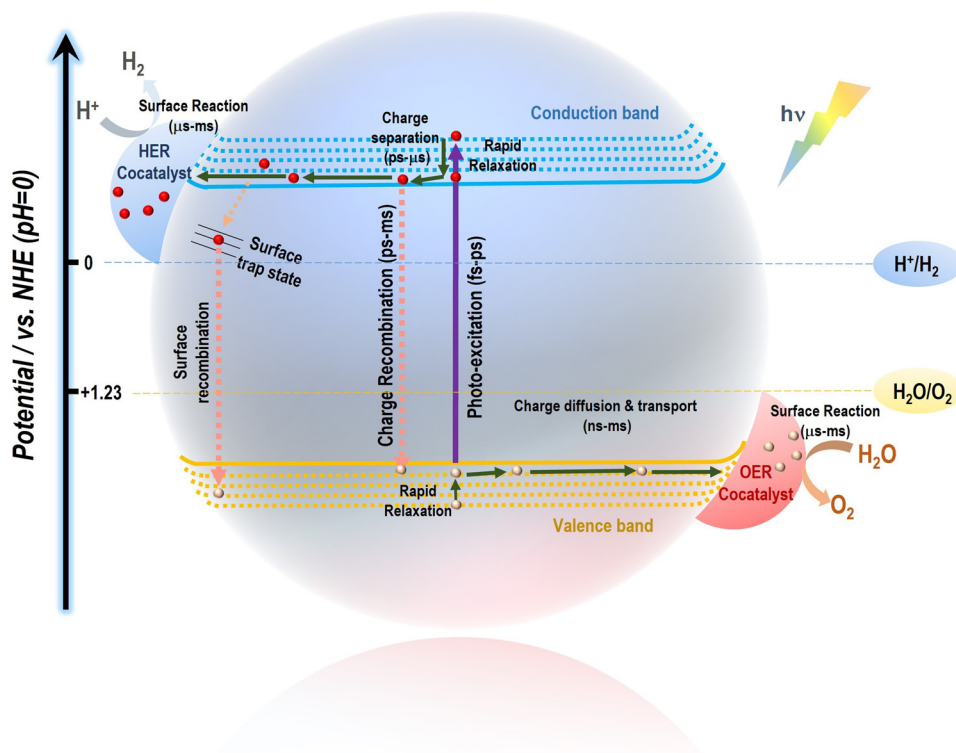


Fig. 3 Mechanism of photocatalytic water splitting on a semiconductor-based photocatalyst.

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.



References

- 299 D. Duonghong, E. Borgarello and M. Graetzel, *J. Am. Chem. Soc.*, 1981, **103**, 4685–4690.
- 300 J. Kim, D. W. Hwang, H. G. Kim, S. W. Bae, J. S. Lee, W. Li and S. H. Oh, *Top. Catal.*, 2005, **35**, 295–303.
- 301 A. Kudo, H. Kato and S. Nakagawa, *J. Phys. Chem. B*, 2000, **104**, 571–575.
- 302 Y. Sakata, T. Hayashi, R. Yasunaga, N. Yanaga and H. Imamura, *Chem. Commun.*, 2015, **51**, 12935–12938.
- 303 M. G. Kibria, F. A. Chowdhury, S. Zhao, B. AlOtaibi, M. L. Trudeau, H. Guo and Z. Mi, *Nat. Commun.*, 2015, **6**, 6797.
- 304 K. Maeda, D. Lu and K. Domen, *Chem. – Eur. J.*, 2013, **19**, 4986–4991.
- 305 H. Liu, J. Yuan, W. Shangguan and Y. Teraoka, *J. Phys. Chem. C*, 2008, **112**, 8521–8523.
- 306 W. J. Jo, H. J. Kang, K.-J. Kong, Y. S. Lee, H. Park, Y. Lee, T. Buonassisi, K. K. Gleason and J. S. Lee, *Proc. Natl. Acad. Sci. U. S. A.*, 2015, **112**, 13774–13778.
- 307 W. Liu, L. Cao, W. Cheng, Y. Cao, X. Liu, W. Zhang, X. Mou, L. Jin, X. Zheng, W. Che, Q. Liu, T. Yao and S. Wei, *Angew. Chem., Int. Ed.*, 2017, **56**, 9312–9317.
- 308 Z. Kang, *Science*, 2015, **347**, 970–974.
- 309 G. Ma, S. Chen, Y. Kuang, S. Akiyama, T. Hisatomi, M. Nakabayashi, N. Shibata, M. Katayama, T. Minegishi and K. Domen, *J. Phys. Chem. Lett.*, 2016, **7**, 3892–3896.
- 310 R. Abe, K. Shinmei, N. Koumura, K. Hara and B. Ohtani, *J. Am. Chem. Soc.*, 2013, **135**, 16872–16884.
- 311 H. Kato, Y. Sasaki, N. Shirakura and A. Kudo, *J. Mater. Chem. A*, 2013, **1**, 12327–12333.
- 312 Y. Sasaki, H. Kato and A. Kudo, *J. Am. Chem. Soc.*, 2013, **135**, 5441–5449.
- 313 W. Wang, Z. Li, J. Chen and C. Li, *J. Phys. Chem. C*, 2017, **121**, 2605–2612.
- 314 K. Tsuji, O. Tomita, M. Higashi and R. Abe, *ChemSusChem*, 2016, **9**, 2201–2208.
- 315 Q. Wang, T. Hisatomi, S. S. K. Ma, Y. Li and K. Domen, *Chem. Mater.*, 2014, **26**, 4144–4150.
- 316 A. Iwase, Y. H. Ng, Y. Ishiguro, A. Kudo and R. Amal, *J. Am. Chem. Soc.*, 2011, **133**, 11054–11057.
- 317 R. Kobayashi, T. Takashima, S. Tanigawa, S. Takeuchi, B. Ohtani and H. Irie, *Phys. Chem. Chem. Phys.*, 2016, **18**, 27754–27760.

