

Table 1 Summarization of perovskite photocatalysts (ABO₃) for water splitting and degradation of pollutants.

Perovskites	Morphology	Band gap (eV)	Synthetic method ^a	Incident Light	Reaction conditions	Co-catalyst (wt %)	Activity (μmol/g/h)			Ref.
							H ₂	O ₂	Pollutants ^b	
NaTaO ₃	bulk	4.0	SS	UV	water	NiO (0.05)	2180	1100		46-48
	bulk	3.96	HT	UV	5% methanol	-	36750			49
	nanoparticle	3.9 - 4.1	SG	UV	water	-	2050	1000		50
	-	4.0	SG	UV	water	-	2660	1330		51
	nanocube	4.0	HT	UV	water	-			CH ₃ CHO	52
	bulk	4.1	SS	UV	Glucose	NiO (0.2)	14200			53
	colloidal	-	HT	UV	water	NiO (1.0)	6600	3300		54
	nanocrystal	-	HT	UV	water	NiO (0.4)	1100	500		55
	nanocrystal	-	SS	UV	50% methanol	Au (0.2)	13780	-		56
	microsphere	4.08	HT	UV	water	NiO (0.3)	26	13		57
La doped	bulk	4.07	SS	UV	water	NiO (0.05)	5900	2900		58
	bulk	4.09	SS	UV	water	NiO (0.02)	19800	9660		59
	bulk	4.1	MS	UV	20% methanol	Pt (1.0)	1115	-		60
	nanoparticle	4.01	microwave	UV	water	NiO (0.02)	3570	1770		61
	nanoparticle	3.9 - 4.0	SG	UV	water				MB	62
	nanoparticle	4.0	SG	UV	water	RuO ₂ (1.0)	4108	1743		63
	nanoparticle	4.0	SG	UV	10% methanol		2860	-		64
	nanocube	3.86	HT	UV	water				MB	65
	bulk	-	SS	UV	water	Au (3.0)	14580	6940		66
	Ca, Sr, Ba doped	bulk	4.0 - 4.1	SS	UV	water	NiO	27200	13380	
Ta ⁴⁺ doped	nanoclusters	1.70	HT	> 420 nm	water		61			68
Cr doped	nanocrystal	4.1 - 3.1	HT	UV	water				MB	69
Eu doped	bulk	> 4.0	SS	UV	water				MB	70
Bi doped	bulk	-	SS	> 420 nm	water				MB	71
	bulk	2.64	SS	> 390 nm	20% methanol	Pt (0.06)	0.86			72
	-	2.88	HT	> 400 nm	5% methanol	NiO (0.02)	59.5			73
Mn or Fe doped	bulk	2.82	SS	> 420 nm	-	-	-			74
N doped	bulk	3.92	SS	UV	water				MB	75
C doped	bulk	2.03	HT	> 400 nm					NO _x	76
La/Cr co-doped	bulk	2.88	pyrolysis	> 415 nm	20% methanol	Pt (0.5)	1467			77
	bulk	NG	SS	> 420 nm	20% methanol	Pt (0.5)	4.4			78
La/N co-doped	bulk	NG	SS	> 420 nm	20% methanol	Ru (0.1)	35			79
N/F co-doped	nanoparticle	3.8 - 4.0	HT	UV	water				RhB	80
LiTaO ₃	bulk	4.7	SS	UV	water	-	430	220		47
K TaO ₃	bulk	3.6	SS	UV	water	-	29	13		47
Zr doped	bulk	3.8	SS	UV	water	NiO (1.5)	122.3	57.4		81
AgTaO ₃	bulk	3.4	SS	UV	water	NiO (0.3)	138	63.3		82
SrTiO ₃	single crystal	-	commercial	UV	20 M NaOH	-	-	-		83
	single crystal	-	commercial	UV	> 5 M NaOH	-	-	-		84
	bulk	3.2	commercial	UV	water vapor	NiO (1.7)	0.1	0.05		85
	bulk	3.2	commercial	UV	water vapor	NiO	-	-		86
	bulk	3.2	commercial	UV	water	NiO (1.5)	-	-		87
	nanoparticle	3.2	HT	UV	water				RhB	88
	nanoparticle	3.2	HT	UV	water				RhB	89
	nanocube	3.2	HT	UV	20% methanol	Pt (1.0)	202.6			90
	microcube	-	HT	UV	water		-	-	RhB	91
	nanocrystal	3.16	SG	UV	50% methanol	Pt (0.5)	276			92
					> 400 nm		188			
	bulk	3.2 - 3.3	SS	UV	water	NiO (3.0)	28			93
	30 nm	3.3 - 3.7	HT				19.4			
6.5 nm	3.3 - 3.7	SG				3.0				
Cr doped	-	-	HT	> 420 nm	5% methanol		27.92			94
	nanoparticle	2.3	SG/HT	> 420 nm	20% methanol	Pt (1.0)	330			95
Fe doped	nanoparticle	-	SG	> 420 nm	water				RhB	96
Mn doped	bulk	2.7	SS				0.66	8.9		

Ru doped	bulk	1.9	SS	> 440 nm	10% methanol	Pt (0.5)	5.6	12.9	97
Rh doped	bulk	1.7	SS		0.05 M AgNO ₃		56.76	0	
Ir doped	bulk	2.3	SS				28.38	1.32	
Er doped	-	NG	SG	> 420 nm	Na ₂ S/Na ₂ SO ₃	Pt (1.0)	46.23		98
					0.185 M AgNO ₃			44.23	
Zn doped	bulk	3.15	SG	UV	3% ethanol		732		99
Ti ³⁺ doped	bulk	NG	combustion		water	Pt (0.3)			CO ₂ 100
Surface Ti ³⁺	nanocrystal	3.2	HT	UV	25% methanol	Pt (1.0)	2200		101
N doped	nanoparticle	2.9	HT	> 420 nm	water				MB, RhB, MO 102
F doped	nanoparticle	3.0	Ball milling	> 400 nm	gas				NO 103
Cr/Sb co-doped	bulk	2.4	SS	> 420 nm	8% methanol	Pt (0.3)	156		104
					50 mM AgNO ₃			1.8	
Cr/N co-doped	nanoparticle	2.4	SG/HT	> 420 nm	18.5% methanol	Pt (0.5)	213.4		105
Cr/Ta co-doped	bulk	-	SS	> 440 nm	6.5% methanol	Pt (1.0)	70		106
Cr/La co-doped	nanoparticle	2.12	HT	> 400 nm	methanol/NaOH	Pt(0.5)	1089		107
Ni/La co-doped	nanoparticle	-	SG	> 400 nm	water				MG 108
S/C co-doped	nanoparticle	2.0	SS	> 420 nm	water				2-propanol 109
N/La co-doped	nanoparticle	-	SG	> 410 nm	gas				2-propanol 110
Ni/Ta co-doped	bulk	2.8	SS	> 420 nm	10% methanol	Pt (0.1)	8		111
					50 mM AgNO ₃			1.7	
La/Rh co-doped	sheet	-	SS	> 420 nm	water	Ru, RuO _x	-	-	112
BaTiO₃	bulk	3.33	SG	UV	water				pesticide 113
	bulk	3.33	SG	UV	water				aromatics 114
	nanotube	-	HT	UV	water	Ag			MO 115
Rh doped	bulk	-	SG	> 420 nm	10% methanol	Pt (0.25)	308		116
Fe doped	nanoparticle	2.81	SG	> 420 nm					photocurrent 117
CaTiO₃	bulk	3.5	HT	UV	0.2 M NaOH	Pt (0.1)	52	20	118
	bulk	3.5	SS	UV	water/methane	Pt (0.04)	-	-	119
Cu doped	-	-	SG	> 400 nm	water	NiO _x	22.7		120
Rh doped	-	-	SS	> 420 nm	10% methanol	Pt (0.1)	16.6		121
Ag/ La co-doped	-	-	SG	> 400 nm	5% methanol		10.1		122
PbTiO₃	bulk	2.75	MS/SS	> 420 nm	20% methanol	Pt (1.0)	27.4		123
						RuO ₂		183.1	
	bulk	2.95	HT	UV	10% methanol	Pt (1.0)	70		124
KNbO₃	bulk	3.12	HT	UV	water	Ni (0.1)	11.7		126
	nanowire	3.2	HT	UV	12% methanol	Pt (0.5)	5170		127
	nanowire	3.8	HT	> 420 nm	water	Au			RhB 128
	microcube	3.0 - 3.2	HT	> 250 nm	25 % methanol	Pt (1.5)	1242		129
	microcrystal	3.24	HT	> 300 nm	25 % methanol	Pt (1.0)	1242		130
	nanowire/cube	NG	HT	UV	water				RhB 131
	microcube	NG	HT	> 420 nm	water	Au (3.0 - 6.0)			H ₂ O ₂ /MB 132
N doped	nanocube	2.76	HT	> 390 nm	20 % methanol	RuO ₂ (0.5)	6.7		133
					0.05M AgNO ₃			58	
NaNbO₃	single crystal	3.8 - 3.9	-	UV	water				RhB 134
	nanoparticle	3.7	Impregnation	UV	air				2-propanol 135
	thin film	3.5	SS	UV	water				MB 136
N doped	bulk	-	SS		air				2-propanol 137
N doped	bulk	-	SS	visible	air				2-propanol 138
Ru doped	nanocube/wire	2.3	HT	> 425 nm	water				phenol 139
AgNbO₃	bulk	2.86	SS	UV	water				MB 140
	bulk	2.9	SG	> 420 nm	water				chlorophenol 141
	bulk	2.8	HT	> 420 nm	5 mM AgNO ₃			75	142
	bulk	2.8	MS	> 420 nm	20% methanol	Pt (1%)	5.9		143
La doped	bulk	2.8	SS	> 400 nm	gas				2-propanol 144
Sr_{1-x}NbO₃	bulk	1.9	SS	> 420 nm	oxalic acid		44.8		145
					5 mM AgNO ₃			24	
	bulk	1.8 - 1.9	SS	> 420 nm	oxalic acid		46.14		146
BiFeO₃	nanoparticle	2.18	SG	UV-Vis.	water				MO 147
	hollow sphere	2.1	spray	> 420 nm	water				RhB, 4-CP 148
	nanoparticle	2.12	HT	> 420 nm	water				RhB 149

	microsphere	1.8 - 2.3	HT	> 400 nm	water				CR	150
	film	2.5	-	> 400 nm	water				CR	151
	epitaxial film	2.74	sputtering						photocurrent	152
	film	2.1, 2.0	laser	> 420 nm	water				photocurrent	153
	nanowire	2.35	HT	> 380 nm	4 mM FeCl ₃	Au (1.0)		400		154
	microsphere	2.1	ST	> 420 nm	water				RhB	155
	bulk	2.5	SS	470 nm	water				Ag reduction	156
Ba doped	nanofiber	-	ES	visible	water				CR	157
Ca doped	nanofiber	-	ES	visible	water				CR	158
Ba or Mn doped	nanofiber	-	ES	visible	water				CR	159
Ca or Mn doped	bulk	2.1 - 2.4	HT	UV-Vis.	water				RhB	160
Gd doped	nanoparticle	2.03	SG	> 420 nm	water				RhB	161
LaFeO₃	nanoparticle	-	combustion	> 340 nm	water				methylphenol	162
	nanoparticle	2.4	SG	> 400 nm	water				RhB	163
	nanosheet	2.1	HT	> 400 nm	water				RhB, MB	164
	nanoparticle	2.1	SG	> 420 nm	10 % methanol			8600		165
			combustion		0.05 M AgNO ₃			4266		
	nanoparticle	2.07	SG		ethanol	Pt		3315		166
	microsphere	2.1	HT	> 400 nm	water				RhB	167
	nanoparticle	-	SG		water				chlorophenol	168
	nanocube	2.01	HT	> 400 nm	water				RhB	169
	nanorod	2.05								
	nanosphere	2.1								
Ca doped	nanoparticle	-	-	> 400 nm	water				MB	170
LnFeO₃ (Pr, Y)	bulk	2.5	SG	> 400 nm	water				RB	171
SrFeO_{3-x}	nanoparticle	-	ultrasonic	> 410 nm	water				phenol	172
SrFeO₃	nanoparticle	-	SS		water				MB	173
GaFeO₃	nanoparticle	2.7	SG	> 395 nm	water			10.0 5.0		174
BaZrO₃	nanoparticle	-	SG	UV	water				MB	177
	nanosphere	4.8	HT	UV	water				MO	178
	bulk	4.8	SS	UV	water			500		179
Mg doped	bulk	-	SS	UV	water				MB	180
Ta doped	bulk	-	precipitation		water			900 450		181
SrSnO₃	bulk	4.1	SS	UV	water	RuO ₂ (1.25)		227.2 113.5		182
	nanorod	4.1	HT	UV	15% methanol	Pt (0.5)		8200		183
					15 mM AgNO ₃			2500		
	nanoparticle	4.04	precipitation	UV	water	NiO _x		254		184
	bulk	-	microwave	UV	water				MO	185
CaSnO₃	bulk	4.4	SS	UV	water	RuO ₂		92 47		186
SrSrO₃		4.1						151.4 75.6		
BaSnO₃		3.1						2.82 1.22		
BaCeO₃	bulk		SG	UV	water	RuO ₂ (1.0)		59 26		187
LaCoO₃	nanoparticle	-	microwave	> 410 nm	water				MO	188
	hollow sphere	2.07	adsorption	UV	water				MB, MO	189
	nanofiber	-	ES	UV	water				RhB	190
C doped	bulk	2.16	chelation	UV-Vis.	water				CO ₂ reduction	191
C/Fe co-doped		2.63	SG	> 400 nm	water				CO ₂ reduction	192
LaNiO₃	nanoparticle	2.6	SG	Visible	water				MO	193
	nanoparticle	2.42	SG	> 420 nm	12.5 % HCHO			33		194

^a: HT: hydrothermal; SS: solid-state; MS: molten salt; SG: sol-gel; ES: Electronspon.

^b: RhB: rhodamine B; MO: methyl orange; MB: methylene blue; 4-cp: 4-chlorophenol; MG: malachite green; CR: congo red.

Table 2 Summarization of perovskite photocatalysts (AA'BO₃, ABB'O₃ and AB(ON)₃) for water splitting and degradation of pollutants.

Perovskites	Morphology	Band gap (eV)	Synthetic method ^a	Incident Light	Reaction condition	Co-catalyst (wt %)	Activity (μmol/g/h)			Ref.	
							H ₂	O ₂	Pollutants ^b		
AA'BO₃											
Bi _{0.5} Na _{0.5} TiO ₃	nanoparticle	3.08	HT	< 365 nm	water					MO	195
	microsphere	2.8 - 2.9	HT	UV	20% methanol	Pt	325.4				196
	nanotube	3.0	HT	> 420 nm	gas					NO	197
Na _{1-x} K _x TaO ₃	bulk	3.75	SG	UV	water		11000	5500			198
La _{0.7} Sr _{0.3} MnO ₃	nanoparticle	1.6	SG	solar light	water					MO	199
La _{0.5} Ca _{0.5} NiO ₃	nanoparticle	-	SG	< 365 nm	water					RB5	200
La _{0.5} Ca _{0.5} CoO ₃	nanoparticle	-	SG	UV	water					CR	201
Sr _{1-x} Ba _x SnO ₃	nanoparticle	4.0 - 2.8	SS	UV 254 nm	water					Azo-dye	202
ABB'O₃											
K _{0.95} Ta _{0.92} Zr _{0.08} O ₃	bulk	3.8	SS	UV	water	NiO (1.0)	122.3	57.4			203
		3.5	SS	UV	water	dyes/Pt	575	280.4			204
		3.5	SS	UV	water	Porphyrin/Pt	513	257			205-6
CaCo _{1/3} Nb _{2/3} O ₃	bulk	2.80	SS	> 420 nm	water	NiOx (1.0)	1.72				207
SrCo _{1/3} Nb _{2/3} O ₃		2.46					1.72				
BaCo _{1/3} Nb _{2/3} O ₃		2.46					2.74				
CaIn _{1/2} Nb _{1/2} O ₃	bulk	4.17	SS	UV	20% methanol	Pt (0.2)	608				208
SrIn _{1/2} Nb _{1/2} O ₃		3.96					114				
BaIn _{1/2} Nb _{1/2} O ₃		3.51					102				
BaM _{1/3} N _{2/3} O ₃ (M=Ni,Zn; N= Nb,Ta)	bulk	3.3 - 4.5	SS	UV	20% methanol	Pt (0.5)	136.4-				209
							1416.4				
BaZn _{1/3} Nb _{2/3} O ₃	bulk	3.90	SS	UV	water	NiO _x /RuO ₂	291.2	145.6			210
BaCo _{1/2} Nb _{1/2} O ₃	nanoparticle	2.26	SG	> 400 nm	water					MB	211
Ba(In _{1/3} Pb _{1/3} M _{1/3})O ₃ (M= Nb, Ta)	bulk	1.5	SS	> 420 nm						MB, 4-CP	212
A(In _{1/3} Nb _{1/3} B _{1/3})O ₃ (A=Sr,Ba; B= Sn, Pb)	bulk	1.5 - 3.5	SS	> 420 nm	water					MB, 4-CP	213
SrTi _x M _{1-x} O ₃	nanoparticle	3.1 - 2.0	HT	UV	10 % methanol	Pt (1%)	670				214
SrTi _(1-x) Fe _x O _(3-δ)	bulk	-	SS	visible	water					MB	215
SrTi _{0.1} Fe _{0.9} O _{3-δ}	nanoparticle	-	SG	solar light	water					MO	216
SrFe _{0.5} Co _{0.5} O _{3-δ}	nanoparticle	-	SG		water					CR	217
SrFe _{1/2} Nb _{1/2} O ₃	bulk	2.06	SS	> 420 nm	15% methanol	Pt (0.2)	45				218
LaNi _{0.7} Cu _{0.3} O ₃	nanoparticle	2.8	SG	> 400 nm	12.5% HCHO		582				219
LaNi _{1-x} Cu _x O ₃	nanoparticle	2.5 - 2.8	SG	> 400 nm	12.5% HCHO		1180				220
LaFe _{1/2} Ti _{1/2} O ₃	nanoparticle	-	SG	UV	water					phenol	221
BaZr _{1-x} Sn _x O ₃		4.8 - 3.3		UV	water		690	185			222
CaTi _{1-x} Zr _x O ₃	nanoparticle	3.60	SG	UV	20 % ethanol	Pt (1.0)	1400				223
Bi(Mg _{3/8} Fe _{2/8} Ti _{3/8})O ₃	bulk	1.86	MS	> 420 nm	water					MO	224
NaBi _x Ta _{1-x} O ₃	bulk	2.8 - 3.4	SP	> 415 nm	20 % methanol	NiO (0.2)	1335				225
NaTi _{1-x} Cu _x O ₃	bulk	-	SS	> 400 nm	10 % methanol	NiO (0.3)	69.3				226
AgTa _{1-x} Nb _x O ₃	bulk	2.8 - 3.4	HT	405/420 nm	water	NiO	-	-			227
AB(ON)₃											
LaTiO ₂ N	bulk	2.1	SS flux	> 420 nm	50 mM AgNO ₃	CoO _x (2)		3680			228
	bulk	2.1	SS	> 420 nm	10% methanol	Pt (3.0)	-	-			229-30
					10 mM AgNO ₃		-	-			
	bulk	2.1	SS flux	> 420 nm	10 mM AgNO ₃	CoO _x (2)		2600			231-2
LaTi(ON) ₃	bulk	2.1	SS	> 420 nm	20% methanol	Pt (3.0)	600				233
					20 mM AgNO ₃			1500			
LaTi(ON) ₃	bulk	2.3 - 2.6	SG	> 420 nm	gas					acetone	234
(CaLa)TiO _{2.25} N _{0.75}	bulk	2.0	SS	> 420 nm	10 mM AgNO ₃	IrO ₂ (2.0)		500			230
CaTaO ₂ N	bulk	2.5	Nitridation	> 420 nm	20% methanol	Pt (0.3)	250				241-3
SrTaO ₂ N		2.1					420				
BaTaO ₂ N		2.0					500				
W-BaTaO ₂ N	bulk	-	SS	> 420 nm	10 mM AgNO ₃	IrO ₂ (1.5)		220			244
				> 420 nm	10% methanol	Pt (1.0)	10			246	

CaNbO₂N

bulk

2.0

SS

0.01 M AgNO₃

312

^a: HT: hydrothermal; SS: solid-state; MS: molten salt; SG: sol-gel;

^b: MO: methyl orange; MB: methylene blue; 4-cp: 4-chlorophenol; RB5: reactive blue 5; CR: congo red; NO: nitrogen monoxide.

Table 3 Summarization of perovskite photocatalysts (AA'BB'O₃) for water splitting and degradation of pollutants

Perovskites	Morphology	Band gap (eV)	Synthetic method ^a	Incident Light	Reaction condition	Co-catalyst (wt %)	Activity (μmol/g/h)			Ref.
							H ₂	O ₂	Pollutants ^b	
(Ag _{0.75} Sr _{0.25})(Nb _{0.75} Ti _{0.25})O ₃	bulk	2.8	SS	> 400 nm	gas phase				CH ₃ CHO	248
(AgNbO ₃) _{1-x} (SrTiO ₃) _x	bulk	2.7 - 3.2	SS	> 410 nm	5 mM AgNO ₃			324		249
(BaZrO ₃) _x -(BaTaO ₂ N) _{1-x}	bulk	-	SS	> 420 nm	IaI solution	Pt (0.3)	110	30		250
(BaZrO ₃) _{0.05} -(BaTaO ₂ N) _{0.95}	nanoparticle	1.8	SS	> 420 nm	1 mM Ial	Pt	440	93		251
(BaZrO ₃) _{0.05} -(BaTaO ₂ N) _{0.95}	nanoparticle	1.8	SS	> 420 nm	10% methanol	Pt (0.3)	141			252
					10 mM AgNO ₃	IrO ₂ (1.5)		77		253
LaMg _x Ta _{1-x} O _{1+3x} N _{2-3x}	bulk	1.9 - 2.1		> 420 nm	water	RhCrO _y	5	2.5		254
CaZrO ₃ -CaTaO ₂ N	nanoparticle	2.6 - 4.0	SS	> 420 nm	10% HCOOH	Pt (1.0)	12.4 - 52.4			255
(SrTiO ₃) _{1-x} (LaTiO ₂ N) _x	bulk	2.0 - 3.2	SS	> 420 nm	18% methanol		66.7			256
					10mM AgNO ₃			53.0		
La _{0.8} Ba _{0.2} Fe _{0.9} Mn _{0.1} O _{3-x}	nanoparticle	-	SG	solar light	water				MO	257
Na _{1-x} La _x Fe _{1-x} Ta _x O ₃	bulk	2.24	SS	> 390 nm	20% methanol	Pt (0.05)	0.81			258
Na _{0.5} La _{0.5} TiO ₃ -LaCrO ₃	nanocube	2.25	HT	> 420 nm	18% methanol	Pt (1.0)	8.2			259
Cu-(Sr _{1-y} Na _y)(Ti _{1-x} Mo _x)O ₃	nanoparticle	-	HT	> 400 nm	gas				propanol	260
Na _{1-x} La _x Ta _{1-x} Cr _x O ₃	bulk	-	SS	> 420 nm	20% methanol	Pt (0.2)	9.0			261
BiFeO ₃ -(Na _{0.5} Bi _{0.5})TiO ₃	macropore	2.1	SG	> 400 nm					RhB	262
Sr _{1-x} Bi _x Ti _{1-x} Cr _x O ₃	bulk	-	SS/ HT	> 420 nm	10% methanol	Pt (1)	37			263

^a: HT: hydrothermal; SS: solid-state; MS: molten salt; SG: sol-gel;

^b: MO: methyl orange; RhB: rhodamine B; CH₃CHO: acetaldehyde.

Table 4 Summarization of layered perovskite photocatalysts for water splitting and degradation of pollutants.

Perovskites	Band gap (eV)	Synthetic method ^a	Incident light	Reaction conditions	Co-catalyst (wt %)	Activities (μmol/g/h)			Ref.
						H ₂	O ₂	Pollutants ^b	
Ruddlesden Popper									
H ₂ SrTa ₂ O ₇ ·nH ₂ O	3.9	SS/EX	UV	water		770	358		264
H ₂ La _{2/3} Ta ₂ O ₇	4.0	SS/EX	UV	water		158	77		265
K ₂ Sr _{1.5} Ta ₃ O ₁₀	4.1	SS	UV	water	RuO ₂ (0.5)	39	11.8		266
H ₂ CaTa ₂ O ₇	3.9	SS/EX	UV	water				RhB	267
Li ₂ CaTa ₂ O ₇	4.36	SS	UV	water				RhB	268
H _{1.81} Sr _{0.81} Bi _{0.19} Ta ₂ O ₇	3.64	SS/ EX	UV	water		2460	1110		269
A ₂ La ₂ Ti ₃ O ₁₀ (A = K, Rb, Cs)	-	SS	UV	water		869	430		270
K ₂ La ₂ Ti ₃ O ₁₀	-	SG	UV	0.1 M KOH	Ni (3.0)	2186	1131		271
	-	HT	UV	10% methanol		2.6			272
Sn ²⁺ and N ³⁻ doped	2.67	SS/EX	> 400 nm	water				RhB	273
Cr doped	-	SS	UV	0.1 M KOH	Ni (3.0)	3270	1650		274
Zn doped	-	SG	UV	56 mM I ⁻		126.6			275
V doped	-	SG	UV	56 mM I ⁻		96			276
N doped	3.44	SS	UV	0.1 M methanol		7.2			277
K ₂ La ₂ Ti _{3-x} M _x O _{10+α} (M = Fe, Ni, W)	-	SS	UV	Na ₂ S Na ₂ SO ₃		22			278
Sr ₃ Ti ₂ O ₇	3.2	SS/SG	UV	water	NiO (3.0)	144	72		279
Sr ₄ Ti ₃ O ₁₀	3.2	SS/SG	UV	water	NiO (3.0)	170			280
Sr ₂ SnO ₄		SS	UV	water	RuO ₂ (1)	4	2		281
Cr doped Sr ₂ TiO ₄		SS	> 400 nm	0.05 M Na ₂ SO ₃	Pt (1.0)	170			282
Rh and Ln doped Ca ₃ Ti ₂ O ₇	-	SS	> 420 nm	10% methanol	Pt (0.1)	3.3			283
Na ₂ Ca ₂ Nb ₄ O ₁₃	3.3	MS	> 300 nm	20% methanol	Pt (1.0)	1355			284
Aurivillius									
Bi ₂ WO ₆	2.8	SS	> 420 nm	5.4% methanol	Pt (1.0)	1.6	34		285
Bi ₂ MoO ₆	3.0			0.05 M AgNO ₃		0.01	2.1		
Bi ₂ WO ₆	2.69	SS	> 420 nm	5 mM AgNO ₃			4.0	CHCl ₃	286
Bi ₂ MoO ₆	2.7 - 2.8	HT	> 420 nm	0.05M AgNO ₃			75		287
Bi ₂ MoO ₆	2.7	SS	> 420 nm	0.05 M AgNO ₃			110		288
Bi ₂ Mo ₂ O ₉	3.1						3.6		
Bi ₂ Mo ₃ O ₁₂	2.88						15.2		
PbBi ₂ Nb ₂ O ₉	2.88	SS	> 420 nm	30% methanol	Pt (1.0)	7.6			293
PbBi ₂ Nb ₂ O ₉	2.88	SS	> 420 nm	15% methanol		37	1429		294
PbBi ₄ Ti ₄ O ₁₅	3.0		> 400 nm	0.05 M AgNO ₃		10.6	1716		
W doped PbBi ₂ Nb ₂ O ₉	2.74	SS	> 420 nm	15% methanol	Pt (0.1)	15.3	631		295
SrBi ₂ Nb ₂ O ₉	3.5	SG	254 nm	water				aniline	296
	3.4	SS	UV					RhB	297
ABi ₂ Nb ₂ O ₉ (A = Sr, Ba)	3.34 - 3.54	SG	254 nm	water				MO	298
ABi ₂ Nb ₂ O ₉ (A = Ca, Sr, Ba)	3.46 - 3.30	SS	UV	12.5 % methanol		3660			299
ALa ₄ Ti ₄ O ₁₅ (A = Ca, Sr, Ba)	3.8 - 3.9	SS	UV	water/CO ₂	Ag	363	168	CO ₂	300
Bi ₅ Ti ₃ FeO ₁₅	2.08	HT	> 420 nm	water				RhB	301
	2.38	SS	> 420 nm	isopropyl alcohol				IPA	302
Bi _{5-x} La _x Ti ₃ FeO ₁₅	2.0 - 2.7	SS	solar light	water				RhB	303
K _{0.5} La _{0.5} Bi ₂ M ₂ O ₉ (M = Ta, Nb)	3.4	SS		water		2.95	17		304
Bi ₄ Ti ₃ O ₁₂	3.1	SS	UV	5% methanol	Pt (1.0)	0.6	3.0		285
BaBi ₄ Ti ₄ O ₁₅	3.3			0.05 M AgNO ₃		8.2	3.7		
Bi ₃ TiNbO ₉	3.1					33	31		
Cr doped Bi ₄ Ti ₃ O ₁₂	-	SG	> 400 nm	5% methanol		58.1			305
Bi ₂ ASrTi ₂ TaO ₁₂ (A = Bi, La)	3.48, 3.32	SS	UV	water				RhB	306
Dion- Jacobsen									
RbNdTa ₂ O ₇	3.8	SS	UV	water		234.8	126.4		307
RbLnTa ₂ O ₇ (Ln = La, Pr, Nd, and Sm)	3.8, 3.9	SS	UV	water	NiO (0.5)	586	293.5		308
MLnTa ₂ O ₇ (M = Cs, Rb, Na, and H; Ln = La, Pr, Nd, and Sm)	3.6 - 4.2	SS	UV	water	NiO _x (0.5)	277.5	131.5		309
MCa ₂ Ta ₃ O ₁₀ (M = Cs, Na, H, C ₆ H ₁₃ -NH ₃)	4.0 - 4.3	SS/IE	UV	water	NiO _x (0.5)	1540	790		310
MCa ₂ Ta ₃ O ₁₀ (M = Li, Na, K, Rb, Cs)	4.2 - 4.3	SS	UV	water	NiO _x (0.5)	3540	1665		311
N-doped CsCa ₂ Ta ₃ O ₁₀	2.0	SS	> 400 nm	0.01 M AgNO ₃			21.6		312

RbPb ₂ Nb ₃ O ₁₀ , HPb ₂ Nb ₃ O ₁₀	-	SS/EX	> 420 nm	16% methanol	Pt (0.1)	15		313
HCa ₂ Nb ₃ O ₁₀	-	SS/EX	UV	10% methanol	Pt (0.1)	8400		314
	3.3	SG/EX	450 nm	EDTA/ Ru-dye	Pt (0.3)	1760		321
	3.3	SG/EX	> 420 nm	EDTA/ Ru-dye	Pt (0.3)	4400		322
HSr ₂ Nb ₃ O ₁₀	3.3	SS/EX	UV	1 M 2-propanol	Pt(0.3)	900		320
KCa ₂ Nb ₃ O ₁₀		SS	UV	10% methanol	Pt (1.0)	5500		315
ACa ₂ Nb ₃ O ₁₀ (A = Li, Na, K)	-	SS	UV	water	RuO _x (0.25)	389	168	316
Pt/KCa ₂ Nb ₃ O ₁₀		SS	UV	10 mM NaI	Pt (1.0)	170	70	317
ASr ₂ Ta _x Nb _{3-x} O ₁₀ (A = K, H)	3.3 - 4.3	SS/EX	UV	10% methanol	Pt	9300		318
HCa ₂ Ta _x Nb _{3-x} O ₁₀ /(ZnS, PbS)	3.5 - 3.7	SS/EX	UV	Na ₂ S/Na ₂ SO ₃		11200		319
AgLaNb ₂ O ₇	2.98	Flux	UV	20% methanol	Pt (1.0)	2102		323
Ag/RbLaNb ₂ O ₇ ,RbA ₂ Nb ₃ O ₁₀	2.4 - 3.7	SS/EX	UV	20% methanol	Pt (0.1)	13616		324
HLaNb ₂ O ₇	3.9 - 4.2	SG/EX	UV	10% methanol	Pt	4800		325
H _{1-x} LaNb _{2-x} Mo _x O ₇	3.1, 2.3	SS/EX	UV	10% methanol		3570		326
{111} layered								
Ba ₅ Nb ₄ O ₁₅	3.9	SG	UV	water	NiO (0.7)	4732	2278	327
Ba ₅ Ta ₄ O ₁₅	3.75	HT	254 nm	water				RhB 328
	4.5	SS	UV	10% methanol	Rh (0.025)	1600		329
M ₅ Nb ₄ O ₁₅ (M= Sr, Ba)	3.9 - 4.0	SS	UV	water	NiO (0.5)	8042	3944	330
N-doped Ba ₅ Ta ₄ O ₁₅	1.78	SS	> 400 nm	20% methanol	Pt (0.1)	49.5		331
N doped Sr ₅ Ta ₄ O ₁₅ or Ba ₅ Ta ₄ O ₁₅	2.2	SS	> 420 nm	20% methanol	Pt (0.3)	91.7		332
{110} layered								
Sr ₂ Nb ₂ O ₇	4.1	SS	UV	water	Ni (0.1)	402		333
La ₄ CaTi ₅ O ₁₇	3.8					499		
Sr ₂ Nb ₂ O ₇	4.0	HT	UV	water	RuO ₂ (0.5)	475	220	334
Sr ₂ (Ta _{1-x} Nb _x) ₂ O ₇	4.5 - 3.9	SS	UV	water	NiO (0.15)	1000	500	335
Sr ₂ Nb _x Ta _{2-x} O ₇ (x = 0 - 2)	3.9 - 4.5	SG	UV	water	NiO (0.15)	3517	1733	336
Sr ₂ Ta ₂ O ₇	4.6	SS	UV	water	NiO (0.15)	1000	480	337
N-doped Sr ₂ Ta ₂ O ₇	2.3	SS	AM 1.5	20% methanol	Pt (0.5)	439.5		338
La ₂ Ti ₂ O ₇	3.2	SS	UV	water	Ni (0.1)	441		333
	3.87	SG	UV	water	Ni (1.0)	960	478	339
	-	SS	UV	water	Ni (1.0)	137		340
	3.8	MS	UV	methanol	Pt (1.0)	140		341
	3.40	HT	UV	water		72.4		342
	2.92	HT	UV	20% ethanol		750		343
	3.1	SS	UV	0.5 mM TMAH	Ni (1.0)	5328	6107	344
Ln ₂ Ti ₂ O ₇ (Ln=La, Pr, Nd)	3.0 - 3.8	SS	UV	water	NiO _x	400	200	345
Ba, Sr, Ca doped		SS	UV	water	NiO _x	2010		346
Cr, Fe doped	2.2,2.6	SS	> 420 nm	33.3% methanol	Pt (1.0)	15		347-8
N doped	2.51	HT	> 420 nm	water				MO 349
Rh doped La ₂ Ti ₂ O ₇	-	SS, MS, SG	> 420 nm	10 % methanol	Pt (0.5)	8.3		350

^a: HT: hydrothermal; SS: solid-state; MS: molten salt; SG: sol-gel; EX: ion-exchange; b: RhB: rhodamine B; MO: methyl orange; IPA: isopropyl alcohol;

^b: MO: methyl orange; RhB: rhodamine B.