Electronic supplementary information

Interfacial regulation of photoanodes for photoelectrochemical water splitting: the role of interlayer and overlayer

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Configuration	Onset potential vs. RHE	Photocurrent density at 1.23 V_{RHE}	ABPE	Stability	Published year[Ref.]
np^+-Si/SiO_x/NiFe	0.89 V	30.7 mA·cm^{-2}	3.3%	100 h	2017[1]
n-Si/SiO_x/Al_2O_3/Pt/Ni/Ni(OH)$_2$	0.997 V	19.2 mA·cm^{-2}	~2%	200 h	2017[2]
n-Si/SiO_x/Ni@Ni(OH)$_2$	1.03 V	36.4 mA·cm^{-2}	~0.6%	300 h	2017[3]
n^+p-Si/SiO_x/Ni/NiO_x/NiFe-LDH	0.78 V	37 mA·cm^{-2}	4.3%	68 h	2018[4]
n-Si/ZrO_2/NiFe	0.96 V	26.6 mA·cm^{-2}	~1.3%	100 h	2018[5]
n-Si/TiO_2/NiAu	1.03 V	18.8 mA·cm^{-2}	~1.2%	20 h	2018[6]
n-Si/SiO_x/SnO_x/Ni	~0.9 V	~31.5 mA·cm^{-2}	4.1%	100 h	2018[7]
n-Si/SiO_x/Al_2O_3/Ni/NiO_x/NiOOH	0.85 V	28 mA·cm^{-2}	3.0%	80 h	2019[8]
n^+p-Si/Ni/NiO	0.93 V	39.7 mA·cm^{-2}	3.2%	100 h	2019[9]
n-Si/$NiSi_x$/NiO_x/Au	0.88 V	34 mA·cm^{-2}	~2.5%	10 h	2019[10]
n^+pp^+-Si/Ni/NiO_x/NiFe-C	0.84 V	38 mA·cm^{-2}	5.1%	135 h	2019[11]
n-Si/a-Si/TiO_2/Ni	0.85 V	~33 mA·cm^{-2}	3.91%	32 h	2020[12]
n-Si/Ni/NiOOH/NiFe	1.0 V	25.2 mA·cm^{-2}	1.42%	20 h	2020[13]
n-Si/SiO_x/NiFe	0.96 V	29.5 mA·cm^{-2}	3.12%	14 h	2020[14]
n-Si/Al_2O_3/Ni/$NiFeO_x$	0.92 V	31 mA·cm^{-2}	1.73%	330 h	2020[15]
n-Si B implanted/NiSi/NiOOH	1.03 V	~17 mA·cm^{-2}	~0.5%	20 h	2020[16]
np^+-Si/SiO_2/Ni	0.7 V	~18 mA·cm^{-2}	~1.2%	7 days	2021[17]
n^+p/SiO_x/Fe/FeO_x/NiOOH	1.01 V	24.1 mA·cm^{-2}	3.0%	75 h	2021[18]
n-Si NW/TiO_2/In_2O_3	0.6 V	27 mA·cm^{-2}	2.25%	5 h	2021[19]
n-Si/SiO_x/NiFe/Ni(OH)$_2$	0.83 V	33.3 mA·cm^{-2}	2.5%	100 h	2022[20]
n-Si/SiO_x/Cu/CuSCN	1.27 V	-	-	1 h	2022[21]
SHJ/ITO/Ni/NiFe	0.84 V	38 mA·cm^{-2}	4.8%	15 h	2022[22]
n-Si/SiO_x/AlO_x/Au/Ni/$NiFeO_x$	0.9 V	33 mA·cm^{-2}	3.71%	50 h	2022[23]

n-Si/TiO_x/Ni	1.08 V	~14 mA·cm^{-2}	~0.4%	600 h	2023[24]
n-Si/ZrO_2/Ni/NiO/Ir SAs	0.97 V	27.7 mA·cm^{-2}	~1.6%	130 h	2023[25]
n-Si/CoO_x/NiFe-LDH	0.95 V	12.2 mA·cm^{-2}	0.57%	2 h	2023[26]
n-Si/CoO_x/NiO_x/FeOOH	0.96 V	22.6 mA·cm^{-2}	2.52%	50 h	2024[27]
HJ-Si/TiO_2/stainless steel	0.84 V	31.65 mA·cm^{-2}	3.39%	167 h	2024[28]
n-Si/CuO_x/NiO/NiCoFe-Bi	0.88 V	29.2 mA·cm^{-2}	4.56%	100 h	2024[29]
FTO/TiO_2/nip-Si/NiO	0.11 V	0.65 mA·cm^{-2}	0.29%	10 h	2025[30]

Table S1. Selected representative results of n-Si based photoanodes with different interlayer and overlayer.

NOTE: The data marked with '~' was obtained by approximately calculating from the figure in article.

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