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## Iron complexes as electrocatalysts for the water oxidation reaction

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# Iron complexes as electrocatalysts for the water oxidation reaction

PROEFSCHRIFT

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door

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# LIST OF ABBREVIATIONS & SYMBOLS

## Ligands

bpmcn	<i>N,N'</i> -dimethyl- <i>N,N'</i> -bis(2-pyridylmethyl)-cyclohexane-1,2-diamine
bpy	bipyridine
dba	dibenzylideneacetone
dpa	<i>N,N</i> -di(1,10-phenanthroline-2-yl)- <i>N</i> -isopentylamine
Hbbpya	<i>N,N</i> -bis(2,2'-bipyrid-6-yl)amine
L	generic ligand
ppq	2-(pyrid-2'-yl)-8-(1'',10''-phenanthroline-2''-yl)-quinoline
TAML	tetra-amido macrocyclic ligand
tpy	terpyridine

## Chemicals

BINAP	2,2'-bis(diphenylphosphino)-1,1'-binaphthyl
CAN	cerium(IV) ammonium nitrate
KOtBu	potassium <i>tert</i> -butoxide
<i>m</i> CPBA	<i>meta</i> -chloroperoxybenzoic acid
Et <sub>2</sub> O	diethyl ether
OTf	triflate anion

## Spectroscopy and spectrometry

d	doublet
dd	doublet × doublet
ddd	doublet × doublet × doublet
EPR	electron paramagnetic resonance
ESI	electrospray ionisation
IR	infrared
J	coupling constant
m	multiplet
m/z	mass-to-charge ratio
MS	mass spectrometry
NMR	nuclear magnetic resonance
ppm	parts per million
s	sharp
SERS	surface enhanced raman spectroscopy
t	triplet
UV	ultraviolet
vis	visible
δ	chemical shift

## Electrochemistry

$\mu\text{A}$	microampere
BDD	boron-doped diamond
CV	cyclic voltammetry
EQCM	electrochemical quartz crystal microbalance
FTO	fluorine-doped tin oxide
GC	glassy carbon
HOPG	highly ordered pyrolytic graphite
ITO	indium tin oxide
OLEMS	on-line electrochemical mass spectrometry
PG	pyrolytic graphite
RHE	reversible hydrogen electrode
RRDE	rotating ring-disc electrode

## Other

$\mu$	prefix to indicate bridging ligands
a.u.	arbitrary units
cf.	compare
e.g.	for example
et al.	et alii
Fig.	figure
FOTW	foot of the wave
g	gram
h	hour
Hz	hertz
K	kelvin
M	molar
Me	methyl
mg	milligram
min	minutes
mL	milliliter
MLCT	metal-to-ligand charge-transfer
mM	millimolar
mmol	millimol
OEC	oxygen evolving complex
Ph	phenyl
PSII	photosystem II
s	second
TOF	turnover frequency
TON	turnover number



