Reactivity of cobalt(II)-dichalcogenide complexes: correlation between redox conversion and ligand-field strength

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Reactivity of Cobalt(II)-Dichalcogenide Complexes:
Correlation between Redox Conversion and Ligand-field Strength

Proefschrift

ter verkrijging van

de graad van doctor aan de Universiteit Leiden,

op gezag van rector magnificus prof.dr.ir. H. Bijl,

volgens besluit van het college voor promoties

te verdedigen op dinsdag 5 Juli 2022

klokke 10:00 uur

door

Christian Marvelous

geboren te Malang, Indonesië

in 1994

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"If you wish to succeed in life, make perseverance your bosom friend, experience your wise counselor, caution your elder brother, and hope your guardian genius."

Joseph Addison

To my parents and to my future self,

As a reminder that persistence is almost always rewarding.

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List of Abbreviations

ATP	adenosine triphosphate	mer	meridional
a.u.	arbitrary units	Met	methionine
bpy	2,2'-bipyridine	MO	molecular orbital
br	broad	MS	mass spectrometry
calcd.	calculated	$N(nBu_4)I$	tetrabutylammonium iodide
CcO	cytochrome c oxidase	NEt_4Cl	tetraethylammonium chloride
Cys	cysteine	$(NGuaS)_2$	2',2'-(2,2'-dithiodiphenyl)bis(1,1,3,3-tetramethylguanidine)
d	doublet (NMR)	NHase	nitrile hydratase
DCM	dichloromethane	NMR	nuclear magnetic resonance
dd	double doublet	Ph	phenyl
DFT	density functional theory	phen	1,10-phenanthroline
DIPEA	diisopropylethylamine	ppm	parts per million
DMF	dimethylformamide	Py	2-pyridyl
DMSO	dimethylsulfoxide	q	quartet
equiv.	equivalent	Hquin	8-quinolinol
ESI	electrospray ionization	RT	room temperature
fac	facial	s	singlet (NMR), strong (IR)
Glu	glutamic acid	Sec	selenocysteine
His	histidine	Ser	serine
HOTf	trifluoromethanesulfonic acid	SOMO	singly occupied molecular orbital
IR	infrared	t	triplet
Leu	leucine	TDDFT	time-dependent density functional theory
LMCT	ligand-to-metal charge transfer	UV-vis	ultraviolet -visible
m	multiplet (NMR), medium (IR)	vs	very strong
Me	methyl	w	weak