

Appendix

Symbols and Abbreviations

Å	Ångstrom unit (10^{-8} cm)
AIBN	2,2'-azo- <i>bis</i> -isobutyrylnitril
COSY	2-D <i>J</i> correlated spectroscopy (NMR)
bpy	bipyridine
b.p.	boiling point
br.	broad signal (NMR)
BuLi	<i>n</i> -butyl lithium
calcd.	calculated
CT	charge transfer
d	doublet (NMR)
dd	doublet of doublet (NMR)
DCC	dicyclohexylcarbodiimide, $C_6H_{11}N=C=NC_6H_{11}$
DHP	3,4-dihydro-2H-pyran
DMF	dimethylformamide
DMSO	dimethyl sulphoxide
DSC	differential scanning calorimetry
2D	two dimensional
δ	chemical shift downfield from TMS, given as ppm
EA	elemental analysis
EI	electron ionisation (MS)
ε	molar absorption coefficient
FAB	fast atom bombardment (MS)
Φ	fluorescence quantum yield
g	gram
GPC	gel permeation chromatography
h	hour(s)
HETCOR	heteronuclear multiple-quantum coherence correlation spectroscopy
HPLC	high-performance liquid chromatography

HRMS	high resolution MS
Hz	Hertz (sec^{-1} or cycles per second)
<i>J</i>	coupling constant, in Hz
<i>k</i>	rate constant for reaction
λ	wave length
<i>m</i>	multiplet (NMR)
<i>M</i>	molar
$[\text{M}]^+$	molecular peak (MS)
MALDI-TOF	matrix assisted laser desorption/ionization - time of flight (MS)
Me	methyl group, CH_3 -
<i>m/e</i>	mass-to charge ratio in mass spectrometry
mg	milligram
MHz	megaHertz $\equiv 10^6$ Hz
min	minute
ml	milliliter
MLCT	metal-to-ligand-CT
mmol	millimol
m.p.	melting point
MS	mass spectrometry
μg	microgram
nm	nanometre
NMR	nuclear magnetic resonance
ORTEP	Oak Ridge Thermal Ellipsoid Plot Programme
ppm	parts per million (NMR)
py	pyridine
r.t.	room temperature
<i>s</i>	singlet (NMR)
STM	Scanning Tunneling Microscopy
<i>t</i>	triplet (NMR)
tBu	t-Butyl
TEA	triethylamine
TGA	thermogravimetric analysis

THF	tetrahydrofurane
THP	tetrahydropyran(yl)
TIPS	triisopropylsilyl
TLC	thin layer chromatography
TMEDA	N,N,N',N'-tetramethylethylenediamine
TMS	trimethylsilyl
tpy	terpyridine
τ	emission lifetime
UV	ultraviolet
XRD	X-ray diffraction

List of Publications

D. Opris, M. V. Diudea.

“Peptide property by Cluj-indices”.

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D. Opris, I. Grosu, L. Toupet, G. Plé, A. Terec, S. Mager, L. Muntean.

“Synthesis and stereochemistry of new tetraspiro-1,3-dioxanes”.

J. Chem. Soc., Perkin Trans. 1, **2001**, *19*, 2413–2420.

M. Venturi, F. Marchioni, V. Balzani, D. M. Opris, O. Henze, A. D. Schlüter.

“A photophysical and electrochemical investigation on a phenylacetylene macrocycle containing two 2,2'-bipyridine units, its protonated forms, and Ru(II) and Os(II) complexes”.

Eur. J. Org. Chem. **2003**, 4227-4233.

A. Terec, I. Grosu, E. Condamine, L. Breau, G. Ple, Y. Ramondenc, F. D. Rochon, V. Peulon-Agasse, D. M. Opris.

“Pentaspiranes and hexaspiranes with 1,3-dioxane or 1,3-oxathiane rings: synthesis and stereochemistry”.

Tetrahedron, **2004**, 3173-3189.

D. M. Opris, P. Franke, A. D. Schlüter.

“Shape persistent macrocycles with bipyridine units: progress in accessibility, widening of applicability”.

Eur. J. Org. Chem. Accepted.

D. M. Opris, P. Franke, D. Lentz, A. D. Schlüter.

“A keystone for shape-persistent macrocycles with bipyridine sides and a set of hetarylenediyne macrocycles by Glaser/Hay-type oligomerization”.

Chem. Commun. Manuscript in preparation.

M. Venturi, F. Marchioni, B. F. Ribera, V. Balzani, D. M. Opris, A. D. Schlüter.
“Photoinduced energy- and electron-transfer processes in dinuclear Ru(II)-Os(II),
Ru(II)-Os(III), and Ru(III)-Os(II) trisbipyridine complexes containing a shape-
persistent macrocyclic spacer”.

J. Am. Chem. Soc. Submitted.

M. Venturi, V. Balzani, F. Marchioni, D. M. Opris, P. Franke, D. Lentz, A. D. Schlüter.
“Ru(II) and Os(II) complexes of shape persistent macrocyclic ligand: synthesis,
photophysical properties, and electrochemical characterization”.

Macrocycles chemistry. Accepted.

D. M. Opris, P. Franke, A. D. Schlüter.

“Functionalized shape persistent macrocycles: synthesis and first steps towards
polymerization”,

Am. Chem. Soc., Polym. Mater. Sci. Engin. **2004**, 91, 422-423.

Posters and Presentations

Doktoranden Kolloquium, Schwerin 27-29. June **2002**

“Synthesis of Phenylacetylene Macrocycles with Bipyridine Donor Sides and Their Complexation with Metals”

(oral presentation, 20 min)

Fifth International Symposium on Functional π Electron Systems, May 30-June 4, **2002** Ulm (Germany)

D. Opris, O. Henze, A. D. Schlüter.

“Phenylacetylene Macrocycles with Bipyridine Donor Sites”

(poster)

SFC Eurochem Toulouse **2002**.

D. Opris, O. Henze, A. D. Schlüter.

“Phenylacetylene Macrocycles with Bipyridine Donor Sites”

(poster)

225th ACS National Meeting, New Orleans, LA; March 23-27, **2003**.

D. Opris, M. Venturi, F. Marchioni, V. Balzani, A. D. Schlüter.

“Ru and Os Complexes of Conjugated Shape-Persistent Macrocycles with Bipyridine Units”

(poster)

International Symposium on Novel Carbon-Rich Organic Materials (NCROM)

September 29-30, **2003**, Osaka University, Osaka, Japan.

D. Opris, M. Venturi, F. Marchioni, V. Balzani, A. D. Schlüter

“Shape-Persistent Macrocycles with Bipyridine Units Progress in accessibility and widening of applicability”

(oral presentation, 5 min., and poster)

Conjugated Oligomers and Polymers: From Synthesis to Electronic Function

Workshop, November 2-5, **2003**, Blaubeuren (Ulm).

“Shape-Persistent Macrocycles with Bipyridine Units Progress in accessibility and widening of applicability”

(oral presentation, 20 min)

Curriculum Vitae

Personal

Last Name: Opris

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Nationality: Romanian

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Education and Studies

09.1980-09.1988	Grammar and elementary school, Halmasd.
09.1988-05.1992	Chemistry High School, Zalau.
06.1992	Abitur
10.1992-06.1997	Main course of studies - Chemistry (Diplom), Babes-Balyai University, Cluj-Napoca.
06.1997	Diploma thesis in the group of Prof. I. Cristea, Babes-Balyai University, Cluj-Napoca. Title: Vilsmeier Haack reaction of pyrimidyl pyrazolones.
10.1998-06.1999	Master thesis in the group of Prof. I. Cristea. Title: The Importance of Maillard reaction in flavors synthesis.
10.1999-03.2001	PhD student, Faculty of Chemistry, Babes-Balyai University, Cluj-Napoca, Romania, in the group of Prof. S. Mager Title: The synthesis of poly-spiro-compounds.
Since 03.2001	Dissertation under the guidance of Prof. Dr. H.-U. Reissig, FU Berlin.

Employment

10.1999-03.2001	Assistant in the lab course "Organic Chemistry", Babes-Balyai University, Cluj-Napoca.
09.1997-02.2001	Chemist (flavour field), Natex, Cluj-Napoca (full time 09.1997-10.1999 and part time 11.1999-02.2001)
10.2001-10.2002	Assistant in the lab course "Organic Chemistry", FU Berlin.

Main experiences

Synthetic organic chemistry both in the direction of materials as well as fragrant and flavour chemistry, characterization of compounds by all common organic and polymer chemistry methods up to molar mass of approximately 20,000 g/mol, theoretical and practical teaching of organic chemistry students.