

Research projects

Managerial competence (Project director):

Project director (PD) 2010 – 2012 (CNCSIS-PD_443/2010 ORGANOMETALLIC AND COORDINATION TIN COMPOUNDS – PRECURSORS FOR ELECTRONIC MATERIALS).

Project director (TD) 2004 – 2005 (CNCSIS-TD_104/2004 RESEARCH ON NEW HYPERVALENT ORGANOTIN COMPOUNDS WITH Sn-E BOND (E = O, S, Se, Te).

Publications:

1. Synthesis, spectroscopic characterization, and structural studies of new Cu(I) and Cu(II) complexes containing organophosphorus ligands, and crystal structures of $(\text{Ph}_3\text{P})_2\text{Cu}[\text{S}_2\text{PMe}_2]$, $(\text{Ph}_3\text{P})_2\text{Cu}[(\text{OPPh}_2)_2\text{N}]$, $\text{Cu}[(\text{OPPh}_2)_2\text{N}]_2$, and $\text{Cu}[(\text{OPPh}_2)(\text{SPPPh}_2)\text{N}]_2$, A. Silvestru, A. Rotar, J. E. Drake, M. B. Hursthouse, M. E. Light, S. I. Farcas, R. Rösler and C. Silvestru, *Can. J. Chem.*, **2001**, 79, 983.
2. Structure and *in vitro* antibacterial activity of $\text{BuSnCl}_{3-n}[(\text{OPPh}_2)(\text{SPPPh}_2)\text{N}]_n$ ($n = 1, 2$), A. Rotar, A. Silvestru, C. Silvestru, J. E. Drake, M. B. Hursthouse, M. E. Light, L. Bunaciu and P. Bunaciu, *Appl. Organomet. Chem.*, **2005**, 19, 555.
3. Hypercoordinated Organotin(IV) Halides Containing 2-(Me_2NCH_2) C_6H_4 Groups: $\{2-(\text{Me}_2\text{NCH}_2)\text{C}_6\text{H}_4\}_2\text{SnX}_2$ ($\text{X} = \text{F}, \text{Cl}, \text{Br}, \text{I}$) and $\{2-(\text{Me}_2\text{NCH}_2)\text{C}_6\text{H}_4\}_2\text{SnX}$ ($\text{R} = \text{Me}, \text{Ph}; \text{X} = \text{F}, \text{Cl}, \text{Br}, \text{I}$) and Their Solution Behaviour and Solid-State, Hydrogen-Bonding-Based Supramolecular Architecture, R. A. Varga, A. Rotar, M. Schürmann, K. Jurkschat, C. Silvestru, *Eur. J. Inorg. Chem.*, **2006**, 1475.
4. Intramolecular interactions in bis[bis{2-(dimethylaminomethyl)phenyl}stannol] oxide, A. Rotar, R. A. Varga and C. Silvestru, *Acta Crystallogr., Sect. C*, **2007**, C63, m355.
5. New copper(I) and copper(II) tetraorganodichalcogenoimidodiphosphinates. Crystal and molecular structure of the first monothioimidodiphosphinato copper(I) complex, $\text{Cu}_4[(\text{OPMe}_2)(\text{SPPPh}_2)\text{N}]_4 \cdot 6\text{CH}_2\text{Cl}_2$, A. Rotar, O. Moldovan, S. I. Farcas, R. A. Varga, C. Silvestru, A. Silvestru, *Studia Universitatis Babeş-Bolyai, Seria Chimia*, **2007**, LII, 1, 81.
6. Substitutional disorder in a hypervalent diorganotin(IV) dihalide, A. Rotar, R. A. Varga and C. Silvestru, *Acta Crystallogr., Sect. E*, **2008**, E64, m45.
7. New organophosphorus ligands with SPNSO skeleton and their copper(I) complexes. Crystal and molecular structures of $(\text{SPPPh}_2)(\text{O}_2\text{SPh})\text{NH}$, $(\text{Ph}_3\text{P})_2\text{Cu}[(\text{SPPPh}_2)(\text{O}_2\text{SMe})\text{N}]$ and $(\text{Ph}_3\text{P})_2\text{Cu}[(\text{SPPPh}_2)(\text{O}_2\text{SC}_6\text{H}_4\text{Me-4})\text{N}] \cdot 0.5\text{C}_6\text{H}_5\text{CH}_3$, A. Pop, A. Rotar, C. Rat, A. Silvestru, *Inorg. Chim. Acta*, **2008**, 361, 255.
8. Crystal and molecular structure of $[2,6-(\text{Me}_2\text{NCH}_2)_2\text{C}_6\text{H}_3]_2\text{SnF}_2$, an intramolecularly coordinated diorganotin difluoride, A. Rotar, M. Schürmann, R. A. Varga, C. Silvestru and K. Jurkschat, *Z. Anorg. Allg. Chem.*, **2008**, 634, 1533.
9. Diorganotin(IV) compounds containing 2-(Et_2NCH_2) C_6H_4 moieties: Configurational stability in solution and solid state structures, A. Rotar, R. A. Varga, K. Jurkschat and C. Silvestru, *J. Organomet. Chem.*, **2009**, 694, 1385.
10. New triarylphosphane chalcogenides. Crystal and molecular structure of $[2-(\text{Me}_2\text{NCH}_2)\text{C}_6\text{H}_4]_3\text{P}=\text{E}$ ($\text{E} = \text{S}, \text{Se}$) and $[2-(\text{Me}_2\text{NCH}_2)\text{C}_6\text{H}_4]_2\text{PhP}=\text{S}$, A. Rotar, A. Covaci, A. Pop and A. Silvestru, *Rev. Roum. Chim*, **2010**, 55(11-12), 823.
11. Group 12 metal aryl selenolates. Crystal and molecular structure of $[2-(\text{Et}_2\text{NCH}_2)\text{C}_6\text{H}_4]_2\text{Se}_2$ and $[2-(\text{Me}_2\text{NCH}_2)\text{C}_6\text{H}_4\text{Se}]_2\text{M}$ ($\text{M} = \text{Zn}, \text{Cd}$), A. Pollnitz, A. Rotar, A. Silvestru, C. Silvestru and M. Kulcsar, *J. Organomet. Chem.*, **2010**, 695, 2486.
12. Butyltrichlorido{2-[(diisopropylammonio)methyl]phenyl}tin(IV) dichloromethane monosolvate, A. Rotar, R. A. Varga and M. Staninska, *Acta Crystallogr., Sect. E*, **2011**, E67, m56.
13. Hypervalent Organoselenium(II) Compounds with Organophosphorus Ligands. Crystal and Molecular Structure of $[2-(^i\text{Pr}_2\text{NCH}_2)\text{C}_6\text{H}_4]\text{Se}[\text{S}_2\text{PR}'_2]$ ($\text{R}' = \text{Ph}, \text{O}^i\text{Pr}$), E.

Duhamel, A. Pöllnitz, A. Stegarescu and A. Silvestru, *Z. Anorg. Allg. Chem.*, **2011**, 637, 1355.

14. Crystal and molecular structure of potassium 18-crown-6-[2,6-bis(dimethylaminomethyl) phenyl]tin(IV) tetrafluoride, A. Rotar, R.A. Varga, M. Schürmann, C. Silvestru and K. Jurkschat, *Main Group Met. Chem.*, **2011**, 34(3-4), 57.

15. New Copper(I) Complexes with Organophosphorus Ligands with XPNSO Skeleton, C. Strady, A. Stegarescu, C. Silvestru, A. Silvestru, *Studia Universitatis Babes-Bolyai, Seria Chemia*, **2013**, LVIII, 4, 243.

16. *Organotin(IV) pseudohalides. Synthesis and structural characterization*, C. Coza, A. Stegarescu, R. Suteu, A. Silvestru, *J. Organomet. Chem.*, **2015**, 777, 71.

Data,

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