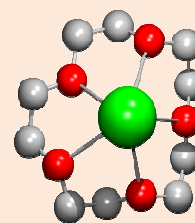


Laboratory of Organometallic and Materials Chemistry



Current research works

Research in our group has multidisciplinary character and covers diverse fields that range from the fundamental inorganic, bioinorganic, organometallic and organic chemistry, catalysis to materials science.

- Inorganic and organometallic complexes and investigations on their transformations mediated by O₂, H₂O and CO₂
- Modeling of active sites in stoichiometric and catalytic reactions including processes involving metalloenzymes
- Engineering ligand- or polymer-coated ZnO nanoparticles and their functionalization for biomedical applications
- Design and preparation of metal-organic frameworks (MOFs) with desired functionalities
- Bio-inspired approaches of synthesis of functional materials
- Design and synthesis of single molecule magnets and diluted magnetic semiconductors
- Hydrogen bonding and supramolecular chemistry
- Mechanochemistry: novel synthetic tool of functional materials
- Hydrogen storage and gas separation

Head:

Janusz Lewiński

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Wojciech Bury

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Daniel Prochowicz
Marcin Kubisiak
Arkadiusz Kornowicz
Krzysztof Budny-Godlewski

Selected publications

- W. Bury, E. Krajewska, M. Dutkiewicz, K. Sokołowski, I. Justyniak, Z. Kaszukur, K. J. Kurzydłowski, T. Płociński, J. Lewiński, "tert-Butylzinc Hydroxide as Efficient Predesigned Precursor of ZnO Nanoparticles", *Chem. Commun.* **2011**, 47, 5467.
- J. Lewiński, M. Dutkiewicz, M. Lesiuk, W. Śliwiński, K. Zelga, I. Justyniak, J. Lipkowski, "Solid State Conversion of the Solvated Dimer [tBuZn(μ-OtBu)(THF)]₂ to a Long Overlooked Trimeric [tBuZnOtBu]₃ Species", *Angew. Chem. Int. Ed.* **2010**, 49, 8266.
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- J. Lewiński, W. Bury, M. Dutkiewicz, M. Maurin, I. Justyniak, J. Lipkowski, "Alkylzinc Carboxylates as Efficient Precursors for Zinc Oxocarboxylates and Sulfidocarboxylates", *Angew. Chem. Int. Ed.* **2008**, 47, 573.
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- J. Lewiński, M. Dranka, W. Bury, W. Sliwinski, I. Justyniak, J. Lipkowski, "From Discrete Linear Zn^tBu₂ Molecules to 1D Coordination Polymers and 2D Fabrics", *J. Am. Chem. Soc.* **2007**, 129, 3096.
- J. Lewinski, W. Sliwinski, M. Dranka, I. Justyniak, J. Lipkowski, "Reactions of [ZnR₂(L)] Complexes with Dioxygen: A New Look at an Old Problem", *Angew. Chem. Int. Ed.* **2006**, 45, 4826.