

## **„Bi- and Tridentate Coordination Compound of Platinum: Preparation and Further Application in Organic and Organosilicon Synthesis”**

The scientific purpose of the proposed research project is to obtain a number of new chelate platinum coordination compounds with ligands that have nitrogen and phosphorus donor atoms and then to test their catalytic activity in the reactions of organic and organosilicon compounds. The most important aspect of this research is the development of effective, efficient and highly selective methods for carbon-carbon, carbon-silicon and carbon-nitrogen bonds formation under mild conditions. Due to the unique properties of organometalloid compounds, products obtained through these transformations will be characterized by high application potential in both industry and laboratory synthesis.

The assumed research tasks include obtaining a wide range of new platinum coordination compounds with potentially high catalytic activity through a simple two-step synthesis. Then testing their properties in reactions most relevant from both the manufacturing industry, as well as laboratory-scale synthesis points of view, will contribute to obtaining precious building blocks. Optimization of individual processes conditions towards efficient and selective product preparation will be carried out through a series of catalytic tests and selection of the appropriate catalyst, temperature, solvent, as well as reaction time.

Researchers around the world are continually looking for new, effective, efficient and above all, selective process catalysts, enabling the acquisition of materials tailored to specific needs and applicable in many areas of our lives (e.g cosmetics, perfumery, pharmaceutical, construction). Implementation of the research described in the project may contribute to the development of original and competitive strategies for the synthesis of this type of compounds and will broaden existing knowledge about mechanisms of conducted reactions.