

CURRICULAM VITAE

ELENA GORBACHUK

A.M. Butlerov Institute of Chemistry
Kremlyovskaya st., 18
Kazan 420008
Russian Federation
Kazan Federal University
Mobile: +7 9063250652
E-mail: gorbachuk_91@mail.ru
Date of birth: October 3, 1991

EDUCATION

Student of Kazan Federal University **09.2009 – 07.2014**

PhD student of Kazan Federal University **09.2014 – Present**
A.M. Butlerov Institute of Chemistry

Specialty: Chemical Sciences,

Specialization: Fundamental and Applied chemistry: Physical Chemistry

List of main subjects for Chemistry specialty: History and Philosophy of Science
English Language
Teaching Practice
Physical Chemistry

Scientific degree: without a degree.

The title of the future PhD thesis: “Electrochemical reduction of white phosphorus: synthesis of phosphine oxide H_3PO and investigation of its reactivity”.

PROFESSIONAL EXPERIENCE

A.E. Arbuzov Institute of Organic and Physical Chemistry **09.2014 – 11.2016**
Kazan Scientific Centre Russian Academy of Sciences

POSITION: ASSISTANT RESEARCHER, participant of the project:
Grant No. 14-13-01122 of the Russian Science Foundation (RSF) “Chemistry of phosphine oxide H_3PO - from molecule to functional materials” (2014-2016).

Aim of the project:

Development of new methods for preparation of different classes of phosphorus compounds used as a platform for catalytic systems and magnetically active materials. The proposed methods are based on previously non-investigated phosphorus compound – phosphine oxide H_3PO , which can

be prepared directly from white phosphorus by mild anodic oxidation of electrochemically generated phosphine PH_3 .

Scope of the Institute: scientific research.

Website of the Institute:

http://iopc.ru/document/main_en.html

Kazan Federal University
A.M. Butlerov Institute of Chemistry

10.2014 – Present

POSITION: JUNIOR RESEARCHER, participant of the project “Homogeneous catalysis”.

Aim of the project:

Design, synthesis, characterization and catalytic activity of novel organometallic and organophosphorus compounds obtained via electrochemical techniques.

Scope of the University: education and scientific research.

Website of the University:

<http://kpfu.ru/eng>

Website of the Laboratory:

<http://kpfu.ru/eng/strau/laboratories-ecooil/homogeneous-catalysis/laboratory-staff>

Personal website of the Research Group:

<http://www.yakhvarov.com/>

Fellowship:

17.10.2016 – 17.12.2016

University Leipzig
Department of Chemistry and Mineralogy
Institute of Inorganic Chemistry
Leipzig, Germany

Title of the project: “Electrochemical synthesis of phosphine oxide H_3PO and its reactivity *in situ* towards aldehydes and cyclic ketones and study of thermal stability of the products”.

Aim of the project:

Synthesis of new electrochemically active phosphorous intermediates for generation of new compounds with P-C and P-H bonds.

Website of the University:

<https://www.uni-leipzig.de/en/>

PUBLICATIONS

1. Yakhvarov D.G., **Gorbachuk E.V.**, Kagirow R.M., Sinyashin O.G. Electrochemical reactions of white phosphorus // *Russ. Chem. Bull.* – 2012. – V.7. – P. 1285-1298.
DOI: 10.1007/s11172-012-0176-5

2. Yakhvarov D.G., **Gorbachuk E.V.**, Sinyashin O.G. Electrode Reactions of Elemental (White) Phosphorus and Phosphane PH_3 // *European Journal of Inorganic Chemistry*. – 2013. – V. 2013. – P. 4709-4726.
DOI: 10.1002/ejic.201300845
3. **Gorbachuk E.V.**, Khayarov Kh.R., Sinyashin O.G., Yakhvarov D.G. Effect of a sacrificial anode material on the electrochemical generation of phosphane oxide (H_3PO) // *Mendeleev Commun.* – 2014. – V. 24. – P. 334-335.
DOI: <http://dx.doi.org/10.1016/j.mencom.2014.11.005>
4. Yakhvarov D.G., **Gorbachuk E.V.**, Khayarov Kh.R., Morozov V.I., Rizvanov I.Kh., Sinyashin O.G. Electrochemical generation of $[\text{P}_4]^{2-}$ dianion from white phosphorus // *Russ. Chem. Bull.* – 2014. – V. 63. – 2423-2427.
DOI: 10.1007/s11172-014-0757-6
5. **Gorbachuk E.V.**, Badeeva E.K., Babaev V.M., Rizvanov I.Kh., Zinnatullin R.G., Pavlov, P.O., Khayarov Kh.R., Yakhvarov D.G., The reactivity of phosphine oxide H_3PO towards ketones // *Russ. Chem. Bull.* – 2016. – V. 65. – P. 1289-1294.
DOI: 10.1007/s11172-016-1450-8
6. **Gorbachuk E.V.**, Badeeva E.K., Zinnatullin R.G., Pavlov P.O., Dobrynin A.B. , Gubaidullin A.T., Ziganshin M.A., Gerasimov A.V. Sinyashin O.G., Yakhvarov D.G., Polymorphism and thermodynamic properties of chloro(cyclopentadienyl)bis(triphenylphosphine)ruthenium(II) complex // *Journal of Organometallic Chemistry*. – 2016. – V. 805. – P. 49-53.
DOI: <http://dx.doi.org/10.1016/j.jorganchem.2016.01.008>
7. **Gorbachuk E.V.**, Badeeva E.K., Katsyuba S.A., Pavlov P.O., Khayarov Kh.R., Sinyashin O.G., Yakhvarov D.G., Thermal stability of primary and secondary phosphine oxides formed as a reaction of phosphine oxide with ketones // *Phosphorus, Sulfur Silicon Relat. Elem.* – 2016. – V. 191. – P. 1480-1481.
DOI: <http://dx.doi.org/10.1080/10426507.2016.1212047>
8. Mindubaev A.Z., Alimova F.K., Voloshina A.D., **Gorbachuk E.V.**, Kulik N.V., Minzanova S.T., Tukhbatova R.I., Yakhvarov D.G., KFU, RU, *Method of detoxification of white phosphorus using a strain of microorganisms Trichoderma asperellum VKPM F-1087*, Russian Federation, Pat. No. 2015131380/10.
9. **Gorbachuk E.V.**, Sinyashin O.G., Yakhvarov D.G. The formation of P_4^{2-} in the reaction of electrochemical reduction of white phosphorus, XXVI International Chugaev Conference on Coordination chemistry, October 6-10, 2014 Kazan, Russia, Book of abstracts, P. 630.

10. **Gorbachuk E.V.**, Badeeva E.K., Zinnatullin R.G., Pavlov P.O., Dobrynin A.B., Sinyashin O.G., Yakhvarov D.G. New polymorph of $[\text{RuCl}(\text{PPh}_3)_2(\eta^5\text{-C}_5\text{H}_5)]$ complex – synthesis, X-ray crystal structure and electrochemical properties, // XXI EuCheMS International Conference on Organometallic Chemistry (EuCOMC XXI), July 5–9, 2015 Bratislava, Slovak Republic, Book of Abstracts, P. 033.
11. **Gorbachuk E.V.**, Badeeva E.K., Pavlov P.O., Zinnatullin R.G., Babaev V.M., Rizvanov I.Kh., Sinyashin O.G., Yakhvarov D.G. The reactivity of phosphine oxide H_3PO towards ketones // 21st International Conference on Phosphorus Chemistry (ICPC 2016) June 5-10, 2016 Kazan, Russia, Book of abstracts, P. 99.
12. **Gorbachuk E.V.**, Badeeva E.K., Pavlov P.O., Zinnatullin R.G., Babaev V.M., Rizvanov I. Kh., Sinyashin O.G., Yakhvarov D.G. First example of electrochemical synthesis of mono- and bis-(alpha-oxyalkyl)phosphine oxides from white phosphorus via phosphine oxide H_3PO // 67th Annual Meeting of the International Society of Electrochemistry (ISE 2016), August 21-26, 2016, Hague, the Netherlands.
13. Khusnuriyalova A.F., Sykhov A.V., **Gorbachuk E.V.**, Vagizov R.I., Yakhvarov D.G. Electrochemical generation of transition metal nanoparticles (Fe, Co, Ni) for catalytic oligo- and polymerization // 80th Prague meeting on macromolecules «Self-assembly in the world of polymers», 10-14 July, 2016, Prague, Czech Republic, P.108.
14. **Gorbachuk E.**, Badeeva E., Hey-Hawkins E., Yakhvarov D. Electrochemical Reactions of White Phosphorus and Ketones // 232nd ECS Meeting, 1-5 October, 2017, National Harbor, USA, P. 2192.