

## **VIKTORIIA RAKS (KHALAF)**

Gender: Female

Nationality: Ukrainian

Birth date: 21-04-1980

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### **Education**

2013-2016 Specialist degree in International Business, Taras Shevchenko National University of Kiev, Ukraine

2002-2006 PhD in Analytical Chemistry, Taras Shevchenko National University of Kiev, Ukraine

2001-2002 MSc in Analytical Chemistry, Taras Shevchenko National University of Kiev, Ukraine

1997-2001 BSc in Chemistry, Taras Shevchenko National University of Kiev, Ukraine

### **Work experience**

2016-to date Researcher: Nicolaus Copernicus University, Poland

2005-to date Associate Professor: Taras Shevchenko National University of Kiev, Ukraine

2014-2015 Visiting Scientist: Associate Professor, Mugla Sıtkı Koçman University, Turkey (1 year)

2013-2014 Visiting Researcher: University of Brighton, UK (5 months)

2013-2014 Visiting Researcher: University of Seville, Spain (6 months)

2012 Visiting Researcher: The Interdisciplinary Research Institute, National Centre for Scientific Research, Lille, France (2 months)

2002-2005 Part-time Assistant Professor: A.A. Bogomolets National Medical University, Kiev, Ukraine

### **Involvement in Research**

1. Application of hyphenated and combined separation techniques in metabolomic studies and searching for cancer markers, Poland
2. 2221 – Fellowship program for visiting scientists and scientists on sabbatical leave, by TUBITAK and BIDEB, Turkey
3. Laser and Raman analytical spectroscopy: progress in on-line chemical monitoring, by the OPCW, the Netherlands

4. Measurement and assessment of the respirable dust fraction against the background of the new reduced MAK value, industrial attachment segment at BASF in Germany, by the OPCW, Germany
5. Fabrication of particles with photo receptors: bio-analytical application such as controlled drug delivery, FP7-PEOPLE-2010-IRSES, № 269099, by the European Commission, France, Spain, the United Kingdom

### **Publications in major, peer-reviewed conference proceedings and/or Monographs**

1. N. Zaitseva, S. Alekseev, V. Zaitsev, V. Raks. Solid-Phase Spectrophotometric Analysis of 1-Naphthol Using Silica Functionalized with *m*-Diazophenylarsonic Acid. *Nanoscale Res Lett*, **2016** (doi: 10.1186/s11671-016-1356-2).
2. V.A. Raks, V.A. Turchin, V.N. Zaitsev. Chromatographic Determination of Pesticide 2,4-D in Water Bodies. *J Water Chem Technology*, **2015** (doi: 10.3103/S1063455X15060065).
3. M. Khanal, V. Raks, R. Issa, V. Chernyshenko, A. Barras, J. M. Garcia Fernandez, L.I. Mikhalovska, V. Turcheniuk, V. Zaitsev, R. Boukherroub, A. Siriwardena, I.R. Cooper, P.J. Cragg, S. Szunerits. Selective Antimicrobial and Antibiofilm Disrupting Properties of Functionalized Diamond Nanoparticles against Escherichia Coli and Staphylococcus Aureus. *Part Part Syst Charact*, **2015** (doi: 10.1002/ppsc.201500027).
4. V. Turcheniuk, V. Raks, R. Issa, I.R. Cooper, P.J. Cragg, R. Jijie, N. Dumitrescu, L.I. Mikhalovska, V. Zaitsev, R. Boukherroub, S. Szunerits. Antimicrobial Activity of Menthol Modified Nanodiamond Particles. *Diamond Relat Mater*, **2015** (doi:10.1016/j.diamond.2014.12.002).
5. M. Khanal, F. Larsonneur, V. Raks, A. Barras, J.S. Baumann, F. A. Martin, R. Boukherroub, J. M. Ghigo, C. Ortiz Mellet, V. Zaitsev, J. M. Garcia Fernandez, C. Beloin, A. Siriwardena, S. Szunerits. Inhibition of Type 1 Fimbriae-Mediated Escherichia Coli Adhesion and Biofilm Formation by Trimeric Cluster Thiomannosides Conjugated to Diamond Nanoparticles. *Nanoscale*, **2015**, 7, 2325–2335 (doi: 10.1039/c4nr05906a).
6. O. M. Ivanova, V. A. Raks, V. N. Zaitsev. Highly-Effective Liquid Chromatographic Determination of 2,4,6-Trinitrophenol in Surface Waters after its Selective Solid Phase Extraction. *J Water Chem Technology*, **2014**, 36, 273–279 (doi: 10.3103/S1063455X14060034).
7. A. Motorina, O. Tananaiko, I. Kozytska, V. Raks, R. Badía, M.E. Díaz- García, V.N. Zaitsev. Hybrid Silica-Polyelectrolyte Films as Optical Sensing Materials for Tetracycline Antibiotics. *Sens Actuators B*, **2014**, 200, 198– 205 (doi: 10.1016/j.snb.2014.04.023).
8. V.A. Khalaf, O.A. Vasil'chenko, S.P. Tishchenko, E.V. Skopenko, V.N. Zaitsev. Preconcentration of Albumin on Silica with Attached Groups of Polyoxyethylated Isooctyl Phenol. *J Anal Chem*, **2011**, 66, 695–700 (doi: 10.1134/S1061934811060086).

9. V.A. Khalaf, V.O. Turchin, A.P. Grin'ko, V.N. Zaitsev. Solid-Phase Extraction Preconcentration of 2,4-Dichlorophenoxyacetic Acid on Silica with Immobilized Polyethoxylated Isooctylphenol Groups. *J Anal Chem*, **2009**, 64, 110–115 (doi:10.1134/S1061934809020038).
10. V. N. Zaitsev, V. A. Khalaf, G. N. Zaitseva. Organosilica Composite for Preconcentration of Phenolic Compounds from Aqueous Solutions. *Anal Bioanal Chem*, **2008**, 391, 1335–1342 (doi: 10.1007/s00216-008-1934- y).
11. V.N. Zaitsev, V.A. Khalaf, G.N. Zaitseva, S.A. Alekseev. Silica Modified with Polyoxyethylene for Phenol Preconcentration from Aqueous Solution. *Ukr Chem J*, **2005**, 59–64.

### **Granted patents**

1. Pat. 2828, MPK7 B01J 20/00. Method of Preparation of Chemically Modified Silica with Aryl Diazonium Groups. Zaitsev V.M., Zaitseva G.M., Khalaf V.A., Gojdzinskiy S.M. (UA). – № 2004010686; Declared 30.01.04; Publ.16.08.04. Bulletin. № 8.-5.11 P.
2. Pat. 52180, MPK(2009) B01D 15/08 A01N 37/10. Method of Determination of 2,4-Dichlorophenoxy Acetic Acid in Aqueous Solutions. Turchin V.O., Zaitsev V.M., Khalaf V.A., Gojdzinskiy S.M. (UA). – № 201005291; Declared 30.04.10; Publ.10.08.10. Bulletin. № 15. 11P.

### **Research monographs, chapters in collective volumes and any translations thereof**

1. O. V. Myronyuk, A.V. Prydatko, V.A. Raks. Chapter 21. Large-Scale Solution for Superhydrophobic Surfaces. In book: Nanophysics, Nanophotonics, Surface Studies, and Applications. Springer Proceedings in Physics. **2016**, 183, pp. 247-259, doi: 10.1007/978-3-319-30737-4\_21.
2. V.A. Raks, A.N. Esaulenko. Modern Chromatography on the Wave Crest of the Progress. Kiev. **2014**, pp. 162. (Original Ukrainian Text В. А. Ракс, А. М. Есауленко. Сучасна хроматографія на гребені хвилі прогресу Київ 2014, 162с.)
3. V. Khalaf, V.M. Zaitsev. Sampling and Sample Preparation in Chromatography. Kiev. **2014**, pp. 234. (Original Ukrainian Text В. А. Халаф, В. М. Зайцев. Пробовідбір та пробопідготовка в хроматографії. Київ. 2014, 234 с.)
4. Practical Book. Development of Analytical Skills in Sample Preparations and Analysis of Chemicals Related to the Chemical Weapons Convention: edited by V. A. Khalaf. Published in Kiev (Interservice) **2012**, pp. 1–30. (Original Russian Text Лабораторный практикум. Развитие аналитических навыков в области пробоподготовки и анализа веществ, занесенных в список Конвенции о запрещении химического оружия. Под ред. Халаф В. А. Издательство: «Интерсервис» г. Киев, 2012, 30 с. **Republished in 2013**)
5. Tutorial. Development of Analytical Skills in Sample Preparations and Analysis of Chemicals Related to the Chemical Weapons Convention: edited by V. A. Khalaf. Published in Kiev (Interservice) **2012**, pp. 1–152. (Original Russian Text

Учебное пособие. Развитие аналитических навыков в области пробоподготовки и анализа веществ, занесенных в список Конвенции о запрещении химического оружия. Под ред. Халаф В. А. Издательство: «Интерсервис» г. Киев, 2012, 152с, **republished in 2013**)

6. V. Khalaf, F. Tarongoy. Laser and Raman Analytical Spectroscopy: Progress in On-Line Chemical Monitoring. The Hague, the Netherlands: Organization for the Prohibition of Chemical Weapons (OPCW) **2011**, 13, pp. 1–164.

7. G. Zaitseva, V. Kalibabchuk, V. Galinska, V. Khalaf. Medical Chemistry. Ministry of Publish Health of Ukraine. O.O. Bogomolets National Medical University, General Chemistry Department. Kiev. **2006**, pp.1–50.

8. V. Kalibabchuk, V. Galinska, V. Khalaf, G. Zaitseva. Bioinorganic, Physical and Colloid Chemistry. A Workbook. Ministry of Publish Health of Ukraine. O.O. Bogomolets National Medical University, General Chemistry Department. Kiev. **2004**, pp. 1–56.

9. G. Zaitseva, V. Kalibabchuk, V. Galinska, V. Khalaf. Bioinorganic, Physical And Colloid Chemistry. Practical lessons. Part I. Ministry of Publish Health of Ukraine. O.O. Bogomolets National Medical University, General Chemistry Department. Kiev. **2004**, pp.1–56.

10. G. Zaitseva, V. Kalibabchuk, V. Galinska, V. Khalaf. Bioinorganic, Physical and Colloid Chemistry. Practical lessons. Part II. Ministry of Publish Health of Ukraine. O.O. Bogomolets National Medical University, General Chemistry Department. Kiev. **2004**, pp.1–56.

#### **Invited presentations to peer-reviewed, internationally established conferences and/or international advanced schools.**

1. 15th Regional Meeting of National Authorities of States Parties in Eastern Europe preceded by a Regional Meeting on Education and Outreach, Vilnius, Lithuania **2016** (hosted by the Government of the Republic of Lithuania and the Organisation for the Prohibition of Chemical Weapons (OPCW))

2. XVI Latin-American congress on chromatography&9th National meeting on chromatography, Lisbon, Portugal, **2016**

3. Spring School on "The theory of NMR", Leipzig, Germany, Volkswagen-Stiftung, **2015**

4. Course on the enhancement of laboratory skills in using liquid chromatography-mass spectrometry to analyse chemicals related to the Chemical Weapons Convention in Helsinki, Finland, OPCW, **2012**

5. Pittcon Conference & Exposition 2011 in Atlanta, Georgia, USA, American Chemical Society Committee on International Activities, **2011**

6. International Basic Course on Assistance and Protection against Chemical Weapons in Islamabad, Pakistan, OPCW, **2011**

7. The Associate Programme, The Netherlands, Germany, the United Kingdom, OPCW, **2011**

8. Analytical skills development course 2010, Finland, OPCW, **2010**

9. A Changing World: New Opportunities for Women Engineers and Scientists in Lille, France, by the International Network of Women Engineers and Scientists, **2008**
10. Knowledge-Based Materials and Technologies for Sustainable Chemistry, Estonia, Tallinn, **2005**
11. Best researcher award at IV Ukrainian conference “Present-Day Problems of Chemistry” in Kiev, Ukraine, **2004**
12. Best researcher award at the “Urgent Questions of Present-Day Medicine” conference in Kiev, Ukraine, **2003**
13. VI International Symposium & Exhibition in Prague, Czech Republic, Institute for International Cooperative Environmental Research at the Florida State University, USA, **2003**

### **Participation in industrial innovation**

Principal collaborator with authorised distributor of Agilent Technologies in Ukraine – ALSI-Chrom, **2009-2013**, (training personnel from industries and laboratories on handling chromatographs, collecting and preparing samples for analysis, performing sample preparation; teaching personnel from industries theoretical knowledge of sophisticated analytical instruments)

Training in the Open Joint-Stock Company “Rivneazot” in Rivne, Ukraine, **2012**, (sampling gases moving from the adsorption column and piping system to the purification reactor and determined the concentration of NO<sub>2</sub> in the production of nitric acid; titration process to determine the fraction of nitric oxides in tail gases; determining the oil content in liquid ammonia using liquid-liquid extraction and the concentration of nitric acid in the final product; aspirating sampling of gases prior to colorimetric determination of O<sub>2</sub>, CO and CO<sub>2</sub> in synthesis-gas; determining the content of carbon by gravimetric analysis)

The Associate Programme: industry training at BASF in Ludwigshafen, Germany; pilot plant training at the University of Surrey, the United Kingdom, organised by the OPCW, 2011, (training in various industrial operations to gain exposure to industry working environments; workplace measurements of dust applying different techniques at two production plants and a pilot plant: environmental auditing)

### **Supervising and mentoring activities**

Supervised 3 PhD, 9 Master's and 9 BSc research projects