GHENT UNIVERSITY
GLOBAL CAMPUS

Prof. Dr. Ir. Serge Zhuiykov

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Short Biographies

Professor Serge Zhuiykov was awarded M.Sc. and Ph.D. degrees in Materials Science & Engineering from the Ukrainian State Technical University, USSR in 1986 and 1991, respectively. After the USSR disintegration at the end of 1991, he immigrated to Australia under the support of young professionals program. Initially, he was working as a Research Scientist at the leading Australian company for four years before joining the research team of RMIT University, Melbourne. In 1998 he received the Australasian Ceramic Society/ Ceramic Society of Japan joint prestigious Award for young distinguished scientist. As a recipient of this Award he travelled to Japan, where he established great research networks among the different Japanese Universities. Consequently, he was appointed as Research Associate at the Kyushu University, Japan in 2000. Professor Zhuiykov's research in Japan was dedicated to the development of new nanostructured semiconductor sensors for environmental monitoring of the most important gaseous pollutants such as CO, NO_x, NH_3, SO_2, H_2S, CO_2 and hydrocarbons (C_xH_y).

Subsequently, in 2002 he returned back to Australia, where he joined Scientific Services Laboratory, Melbourne, which was amalgamated with the Commonwealth Scientific Industrial Research Organisation (CSIRO) in 2004. However, he maintained his scientific co-operation with Kyushu University, Japan in 2003 – 2014. As a result of this co-operation, he was periodically working in Japan as an Invited Visiting Professor in 2004, 2005, 2007, 2009, 2010, 2011 and 2013.

During his time at CSIRO Professor Zhuiykov was a Stream Leader of the Sensors and Sensor Networks Transformation Capability Platform (2009-2011). He also led several important co-investment scientific projects. His research capabilities and leadership have resulted in his appointment as a Principal Research Scientist in 2012. In addition to his research activities, as an expert, Professor Zhuiykov was a member of two Technical Committees of the Standards Australia International (2003-2015). He was also the Leader of the Australian delegation at the International Standards Organisation (ISO) TC-21/SC-8 Technical Committee in 2005-2014.

Professor Zhuiykov is a recipient of 2007, 2011 and 2013 Australian Academy of Science and 2010 Australian Government Endeavour

Executive Awards for his work on advanced functional nano-crystals and their applications.

In 2017 he was selected as one of recipients of very prestigious **"100 Talents"** Program of the Shanxi Province, P.R. China. He is the author and co-author more than 200 scientific publications, including 3 monographs:

- "Nanostructured semiconductors" (Elsevier Science, UK, 2018)
- "Nanostructured Semiconductor Oxides for the Next Generation of Electronics and Functional Devices" (Woohead Publishing, UK, 2014)
- "Electrochemistry of Zirconia Gas Sensors" (CRC Press, USA, 2007),

7 book chapters and 15 international patents.

At GUGC, he is a Director of Centre for Energy & Environmental Research (CEER) and responsible for a number of Environmental Technologies courses.

Research Area

- New class of nano-materials: 2D semiconductors including metal oxides (WO_3, TiO_2, Nb_2O_5, MoO_3) and dichalcogenides (MoS_2, WS_2 etc.)
- Environmental applications: nano- and opto-electronic devices, environmental sensors, solar cells, catalytic and photo-catalytic applications.

Education

- (1991) Ukrainian State Technical University, USSR (PhD)
- (1986) Ukrainian State Technical University, USSR (MSc)

Experience

- 2015 – Present Senior Full Professor, GUGC, Korea
- 2009 – 2015 Principal Research Scientist, Stream Leader, CSIRO, Australia
- 2004 – 2009 Senior Research Scientist, CSIRO, Australia
- 2002 – 2004 Manager, SSL, Australian Government Analytical Laboratories
- 2000 – 2002 Research Associate, Kyushu University, Japan

Selected Publications

- "Nanostructured Semiconductor Oxides for the Next Generation of Electronics and Functional Devices: Properties and Applications", Woodhead Publishing, Cambridge, UK 2014, 484p.
- "Electronic tuning of 2D MoS_2 through surface functionalization", Advanced Materials 27 (2015) 6225-6229.
- "Plasmon resonances of highly doped two-dimensional MoS_2", Nano Letters 15 (2015) 883 - 890.

- "Proton intercalated two-dimensional WO_3 with enhanced charge-carrier mobility at room temperature", Nanoscale 6 (2014) 15029–15036.
- "Large carrier mobility in high-k two-dimensional metal oxides", Advanced Materials 25 (2013) 109–114.
- "Field Effect Biosensing Platform based on 2D α–MoO_3", ACS Nano 7 (2013) 9753-9760.
- "Active control of photoluminescence in two-dimensional MoS_2 nanoflakes", ACS Nano 7 (2013) 10083–10093.

Awards

- 2013, 2011, 2007 Australian Academy of Science / Japan Society Promotion of Science Award.
- 2010 Australian Government: Endeavour Executive Award.
- 2009, 2010 Invited Visiting Professor. Kyushu University, Japan.