Candidate application to the ISGS Board of Directors

Prof. / Dr. Rafal J. Wiglusz

Age: 42

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Curriculum Vitae

1. **Personal Details:**

Name: Rafał (Rafael) Jakub
Surname: Wiglusz
Age: 42.

2. **Academic and Research Career:**

- **M. Sc.** in chemistry, University of Wroclaw, Wroclaw, Poland 1999.
- **Ph.D.** in chemistry, University of Wroclaw, Wroclaw, Poland 2004.
- **Postdoc** – University of Cologne, Institute of Inorganic Chemistry, Germany 2005/2006.
- **Hab. Ph.D.** – in chemistry, Institute of Low Temperature and Structure Reaserach PAS, Poland 2013.
- **Professor** - Institute of Low Temperature and Structure Reaserach PAS, Poland 2015.

3. **Current place of employment: Institute of Low Temperature and Structure Reaserach Polish Academy of Science , Wrocław, Poland.**

4. **Scientific position: Professor**

5. **Specialization: Nanotechnology: organic and inorganic nanosized materials for theranostic.**

The goals of the research lie in the preparation of nanometer-sized oxides, metallic, and magnetic particles, followed by the creation of periodically ordered nanostructures based on single nanoparticles. Moreover, the research is dealing with the effect of the hydrolytic and non-hydrolytic reaction conditions on structural, luminescence and magnetic properties of complex metal oxide nanoparticles showing prospects in bio-imaging applications. A small particle size implies high sensitivity and selectivity. These new effects and possibilities are mainly due to quantum effects that are a result of the increasing ratio of surface to volume atoms in low-dimensional systems. An important factor in this context so far has been the design and fabrication of nanocomponents with/displaying new functionalities and characteristics for the improvement of existing materials; including photonic materials, conductive materials, polymers and biocomposites. With this concept of nanotechnology in mind, the aim of developing innovative products and application options in electronics and biomedicine, based solely on nanoscale technology.

6. Most important international and Polish scientific prizes and awards:

- Stipend of „Sonderforschungsbereich 608 der Deutschen Forschungsgemeinschaft" Koln University, 2005 – 2006.
- INNOVATION 2011 – Gold medal - Toothpaste with unique properties based on nanohydroxyapatit.
- INNOVA 2013 – Gold medal - Innovative hydoxyapatite-based ointment and dressing for hard-to-heal wounds.
- Honourable diploma of Polish Ministry of Science and Higher Education at The 21th Anniversary of the Invention Exchange 2014.
- CONCOURS LÉPINE 2014 – Brown medal – Production technology of innovative hydoxyapatite-based ointment and dressing for hard-to-heal wounds.

7. Current projects and projects completed:

a. **UMO-2016/21/B/NZ6/01157** "Elaboration and characteristics of biocomposites with anti-virulent and anti-bacterial properties against Pseudomonas aeruginosa", ILT&SR PAS Wrocław – Poland and University of Wroclaw, Faculty of Biology – Poland, project executor.
b. **UMO-2015/19/B/ST5/01330** "Preparation and characterisation of biocomposites based on nanoapatites for theranostic", ILT&SR PAS Wrocław - Poland, project leader.
c. **UMO-2012/05/E/ST5/03904** "Preparation and characterization of nanoapatites doped with rare earth ions and their biocomposites", ILT&SR PAS Wrocław - Poland, project leader.
d. **UMO-2012/06/M/ST5/00048** "Nanomatarials for fluorescence lifetimes bio-imaging (NFLBio)", ILT&SR PAS Wrocław – Poland and Universitete Blaise Pascal, Institut de Chimie de Clermont-Ferrand – France, project leader.
e. **UMO-2011/03/D/ST5/05701** "Syntheis, structural and spectroscopic investigations of up-converting nanometerials doped with lanthanide ions" ILT&SR PAS Wrocław – Poland and Adam Mickiewicz University, Faculty of Chemistry – Poland, project executor.
f. **UMO-2011/01/D/ST5/05827** "Smart nanoparticles for bio-imaging and drug delivery" project funded by National Science Centre, ILT&SR PAS Wrocław - Poland, project executor.
g. **Mozart** - buisiness-science partnerships. "Mozart" is a city programme (approved by the Wrocław City Council) which aims to activate the local labour market and support job creation by connecting business and science and strengthen transfer of knowledge between these sectors, project leader.
h. **NanoMat EIT+** - The Application of Nanotechnology in Advanced Materials "Workpackage 1. Materials and nanomaterials for photonics, micro- and nanoelectronics and sensing. Task 1.1 Nanomaterials for photonic and biomedical applications", project exexutor.
i. **NanoMat EIT+** - The Application of Nanotechnology in Advanced Materials „ Workpackage 9. Nanomaterials prepared with the sol-gel method for biomedical, optical and textile applications", project exexutor.
j. **NN 204 3315/37**, "Synthesis and optical properties of nanocrystalline spinels doped with rare earth ions", project funded by Ministry of Science and High Education Republic of Poland, ILT&SR PAS Wrocław - Poland, project leader.
k. **SFB 608**, „Komplexe Übergangsmetallverbindungen mit Spin- und Ladungsfreiheitsgraden und Unordnung", project funded by German Research Founation, Federal Republic of Germany, Cologne, University of Cologne, 2005 – 2006, project executor.
l. **GR-POL-2006-2007**, "Development of materials suitable for solid oxide fuel cells", project co-funded by Greece and Polish Governments, National Technical University of Athens, School of Chemical Engineering - Greece and ILT&SR PAS Wrocław – Poland, project executor.
m. **NN 507 5849/38**; „Nanophosphors doped with lanthanide ions as probes in biosensors" project funded by Ministry of Science and High Education Republic of Poland, ILT&SR PAS Wrocław - Poland, project executor.

8. 5 recent publications:

- K. Zawisza and **R.J. Wiglusz**, Preferential site occupancy of Eu^{3+} ions in strontium hydroxyapatite nanocrystalline – $Sr_{10}(PO_4)_6(OH)_2$ – structural and spectroscopic characterization, Dalton Transactions, 46 (2017) 3265-3275.
- K. Marycz, P. Sobierajska, A. Smieszek, M. Maredziak and **R.J. Wiglusz**, Li^+ activated nanohydroxyapatite doped with Eu^{3+} ions enhances proliferative activity and viability of human stem progenitor cells of adipose tissue and olfactory ensheathing cells. Further perspective of nHAP:Li^+, Eu^{3+} application in theranostic, Materials Science and Engineering: C - 78 (2017) 151-162.
- K. Marycz, R. Pazik, K. Zawisza, K. Wiglusz, M. Maredziak, P. Sobierajska and **R.J. Wiglusz**, Multifunctional nanocrystalline calcium phosphates loaded with Tetracycline antibiotic combined with human adipose derived mesenchymal stromal stem cells (hASCs), Materials Science and Engineering: C - 69 (2016) 17 - 26.
- P. Sobierajska, R. Pazik, K. Zawisza, G. Renaudin, J.-M. Nedelec and **R. J. Wiglusz**, Effect of lithium substitution on the charge compensation, structural and luminescence properties of nanocrystalline $Ca_{10}(PO_4)_6F_2$ activated with Eu^{3+} ions, CrystEngComm, - 18 (2016), 3447-3455.
- R. Pazik, A. Zięcina, B. Poźniak, M. Malecka, L. Marciniak and **R. J. Wiglusz**, Up-conversion emission and in vitro cytotoxicity characterization of blue emitting, biocompatible $SrTiO_3$ nanoparticles activated with Tm^{3+} and Yb^{3+} ions, RSC Advances - 6 (2016) 39469-39479.

R.J. Wiglusz has published over 100 internationally refereed publications in physics, chemistry, materials science, biochemistry, medicine, nanotechnology and engeenering. His work has been over 921 times quoted in the ISI Index at an average of over 20 citations per publication, while his h-index is currently 20.

9. Statement of interest

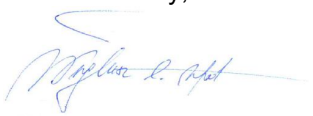
I would like to apply for the position of Board Member with the International Sol-Gel Society. I am an active community member with a background in sol-gel chemistry and would love the chance to give back by lending my advisory skills to an organization such as yours.

I am a Chemist by profession and work with students and other scientists on an individual basis and to work toward achieving group goals. I have a strong background in synthesis development and possess a broad range of science skills.

In addition one of my areas of expertise is a manager skill in chemistry company. With this background and knowledge I believe I would serve as an excellent adviser and Board Member to your organization. I have been praised for my ability to reach people who've built up walls of self protection and other such defence mechanisms. I would be thrilled to have the opportunity to serve on your board and put my knowledge to use.

I am confident you will find me a good fit for your needs as a Board Member to the International Sol-Gel Society.

Yours sincerely,



D.Sc. Rafael J. Wiglusz, Professor