

## Scientific Resume

### 1. Name and surname:

Paweł Nakielski

### 2. Current place of employment:

Institute of Fundamental Technological Research PAS, position: assistant professor  
Adolfa Pawińskiego 5B street, 02-106 Warsaw, Poland

### 3. Experience

5/2015 – now Institute of Fundamental Technological Research Polish Academy of Sciences,  
Assistant Professor in the Department of Mechanics and Physics of Fluids  
5/2015 – now Life Science Business Consultant  
10/2014 – 4/2015 IFTR PAS, Specialist in the Department of Mechanics and Physics of Fluids

### 4. Education:

2010 – 2014 Doctoral studies: IFTR PAS, supervisor prof. Tomasz. Kowalewski  
2005 – 2010 Chemical and Process Engineering Department, Warsaw University of  
Technology, Specialization: Biomedical and Products and Processes, supervisor  
prof. Jerzy Bałdyga

### 5. Training:

- 1) Requirements of the medical Directive 93/42/EEC and the Law on Medical Devices, legal requirements necessary for preparation of technical documentation of a medical device, TUV NORD, 2016
- 2) Workshop “Managing the team and the project” Bio&Technology Innovations Platform, 2014
- 3) Workshop “Business models and strategy development of starts-ups workshop” Bio&Technology Innovations Platform, 2014
- 4) Workshop on the protection of intellectual properties, 2012

### 6. Internships:

- 1) Top 500 Innovators Science-Management Commercialization Program, an internship organized by the Ministry of Science and Higher Education, Cambridge/Oxford, July - September 2015
- 2) Mossakowski Medical Research Centre PAS, Laboratory of electron microscopy, October 2013

### 7. Patents:

“Application of nanofibrous dressing for the protection of posttraumatic changes in the brain.”  
Polish patent application nr P.404667

## 8. Scholarship/distinction:

- 1) Distinction by the IFTR PAS for scientific achievements in 2015
- 2) Scientific Award from Committee of Mechanics PAS in the name of Professor Michał Życzkowski, 2015
- 3) Scholarship for PhD students of Biocentrum Ochota performing innovative projects, Bio&Technology Innovations Platform, 2011 - 2014
- 4) Award for the best oral presentation 1<sup>st</sup> Young Scientist Conference “Biotechnology in animal production” SGGW, Warsaw, 24-25 April 2014
- 5) Award for the best poster presentation on the 3<sup>rd</sup> European Young Engineers Conference WUT, Warsaw, 29-30 April 2014
- 6) Award for the best poster presentation on the XXI Fluid Mechanics Conference in Cracow, 15-18 June 2014

## 9. Scientific projects (five most recent):

- 1) Investigation of blood clotting mechanism in the contact with nanofibers, Principal Investigator: Paweł Nakielski.
- 2) Stimuli-responsive chiral nematic liquid crystal hydrogel implants by electrospinning technique. Role in the project: contractor.
- 3) Analysis of the possibility of commercialization of nanofiber materials. The current state of electrospinning technology. Role in the project: analyst.
- 4) The dynamics of micro and nano objects suspended in a fluid. Role in project: contractor.
- 5) The use of electrospun nanofibers as dressings active in preventing traumatic changes in brain tissue, NCRD. Role in the project: main contractor.

## 10. Publications in reviewed journals:

- 1) Pierini F., Zembrzycki K., **Nakielski P.**, Pawłowska S., Kowalewski T.A., Atomic force microscopy combined with optical tweezers (AFM/OT), *Measurement science and technology*, Vol.27, pp.025904-1-11, 2016,
- 2) Pierini F., Lanzi M., **Nakielski P.**, Pawłowska S., Zembrzycki K., Kowalewski T.A., Electrospun poly(3-hexylthiophene)/poly(ethylene oxide)/graphene oxide composite nanofibers: effects of graphene oxide reduction, *Polymers for Advanced Technologies*, ISSN: 1042-7147, pp.1-11, 2016,
- 3) **Nakielski P.**, Pawłowska S., Pierini F., Chmielowiec W., Hejduk P., Zembrzycki K., Zabost E., Kowalewski T.A., Hydrogel nanofilaments via core-shell electrospinning, *PLOS ONE* Vol.10, No. e0129816, pp.1-16, 2015,

- 4) **Nakielski P.**, Kowalczyk T., Zembrzycki K., Kowalewski T.A., Experimental and numerical evaluation of drug release from nanofiber mats to brain tissue, *Journal of Biomedical Materials Research: Part B – Applied Biomaterials*, 103B(2), 282-291, 2015,
- 5) Rafałowska J., Sulejczak D., Chrapusta S.J., Gadamski R., Taraszewska A., **Nakielski P.**, Kowalczyk T., Dziewulska D., Non-woven nanofiber mats – a new perspective for experimental studies of the CNS?, *Folia Neuropathologica*, 52(4), 407-416, 2014,
- 6) Pokrywczyńska M., Jundziłł A., Adamowicz J., Kowalczyk T., Warda K., Rasmus M., Krzyżanowska S., Buchholz L., Nowacki M., Chmielewski T., **Nakielski P.**, Bodnar M., Marszałek A., Dębski R., Frontczak Baniewicz M., Drewa T., Is the poly(L-lactide-co-caprolactone) nanofibrous membrane suitable for urinary bladder regeneration?, *PLOS ONE*, 9(8), 2014,
- 7) Sulejczak D., Andrychowski J., Kowalczyk T., **Nakielski P.**, Frontczak-Baniewicz M., Kowalewski T. A., Electrospun nanofiber mat as a protector against the consequences of brain injury, *Folia Neuropathologica*, 52(1), 56-69, 2014.

#### 11. Conference publications:

- 1) Kowalewski T.A., **Nakielski P.**, Pierini F., Zembrzycki K., Pawłowska S., Advances in Mechanics: Theoretical, Computational and Interdisciplinary Issues, rozdział: Micro and nano fluid mechanics, CRC Press, pp.27-34, 2016,
- 2) Pokrywczyńska, M., Jundziłł, A.; Adamowicz, J., Krzyżanowska S., Bodnar M., Marszałek A., Chmielewski T., **Nakielski P.**, Kowalczyk T., Dębski R., Drewa T. Is bladder wall regeneration nowadays feasible? Comparison of different biomaterials in bladder wall augmentation, *Journal of Tissue Engineering and Regenerative Medicine*, Volume: 6, pp. 15-15, 2013,
- 3) **Nakielski P.**, Kowalczyk T., Kowalewski T.A., Modeling drug release from materials based on electrospun nanofibers, Proceeding of the COMSOL Conference, pp. 1-6, Rotterdam, 23 – 25 October 2013 [www.comsol.com/paper/download/181521/nakielski\\_paper.pdf](http://www.comsol.com/paper/download/181521/nakielski_paper.pdf),
- 4) **Nakielski P.**, Kowalczyk T., Kowalewski T.A., Experimental study of drug release system based on electrospun nanofibres, Proceedings of the 23rd International Congress of Theoretical and Applied Mechanics, Eds:Y. Bai, J. Wang, D. Fang, Beijing, 19-24 August, CD-ROM FS10-007, 2012.

#### 12. Conference presentations, delivered personally (five most recent):

- 1) **Nakielski P.**, Kowalczyk T., Kowalewski T.A., Modelling drug delivery from nanofibers to brain tissue (poster), Book of Abstracts pp. 24, XXI Fluid Mechanics Conference, Cracow 15-18 June 2014,

- 2) **Nakielski P.**, Kowalczyk T., Kowalewski T.A., Evaluation of drug release from electrospun nanofibers by modification of material morphology (poster), Book of Abstracts pp. 150, 3<sup>rd</sup> European Young Engineers Conference PW, Warsaw, 29-30 April 2014,
- 3) **Nakielski P.**, Kowalczyk T., Kowalewski T.A., Application of nanofibers in regenerative medicine, (oral presentation), 1<sup>st</sup> Young Scientist Conference „Biotechnology in animal production” SGGW, Warsaw, 24-25 April 2014,
- 4) **Nakielski P.**, Kowalczyk T., Kowalewski T.A., Modelowanie procesu uwalniania leków z materiałów opartych na nanowłóknach (poster), Book of abstracts, pp. 112-113, 53 Sympozjon „Modelowanie w mechanice”, Ustron, 22-26 February 2014,
- 5) **Nakielski P.**, Kowalczyk T., Kowalewski T.A., Experimental analysis of drug release process from nanofibrous mats, (oral presentation), Experiments In Fluid Mechanics Symposium, Warsaw, 14-15 October 2013.

### **13. Coauthor of conference presentations (five most recent):**

- 1) **Nakielski P.**, Pawłowska S., Pierini F., Hejduk P., Zembrzycki K., Kowalewski T.A., Processing and mechanical properties relationships in hydrogel nanofilaments for biological application, ICMCSF, May 17-22, Lille, France, 2015,
- 2) **Nakielski P.**, Pawłowska S., Pierini F., Hejduk P., Zembrzycki K., Kowalewski T.A., Novel hydrogel nanofilaments based on electrospun core-shell fibers, Europhysics Conference Abstracts, Biomolecules and Nanostructures 5, 13-17 May, Jaroszowice near Kraków, Poland, Vol.39C, pp.101, 2015,
- 3) Pawłowska S., **Nakielski P.**, Pierini F., Zembrzycki K., Kowalewski T.A., Mobility of nanofilaments, Experiments in Fluid Mechanics 2015, 26-27.10, Warsaw, Poland, 2015,
- 4) Pierini F., **Nakielski P.**, Pawłowska S., Zembrzycki K., Kowalewski T.A., Hydrogel nanofilaments via core-shell electrospinning, NanoItaly, September 21-24, Roma, Italy, 2015,
- 5) Kowalewski T.A., **Nakielski P.**, Pierini F., Zembrzycki K., Pawłowska S., Nanoscale challenges of fluid mechanics, PCM-CMM 2015 - 3rd POLISH CONGRESS OF MECHANICS & 21st COMPUTER METHODS IN MECHANICS, SEPTEMBER 8-11, GDAŃSK, POLAND, pp.11-16, 2015.

### **14. Reviewer in scientific journals**

- 1) Materials
- 2) Journal of Biomaterials Applications
- 3) Polymers for Advanced Technologies