ZBIGNIEW BASTER, MSCENG

baster.zbigniew@gmail.com

Permanent address
5 Bajeczna Street, Apt 74
31-566 Krakow, POLAND
+48 692-928-883

EDUCATION

2014-present **PhD candidate: Physics; Specialization: Biophysics**
Faculty of Physics, Astronomy and Applied Computer Science
Jagiellonian University, Krakow, Poland
Thesis: *Interplay between talin and β1-integrin in cancer cells motility.*
Supervisor: **prof. Zenon Rajfur, PhD, DSc**

2019-2020 **Jagiellonian Interdisciplinary PhD Programme**
Jagiellonian University, Krakow, Poland

2011-2014 **Bachelor of Science: Biochemistry**
Faculty of Biochemistry, Biophysics and Biotechnology
Jagiellonian University, Krakow, Poland
Thesis: *Physicochemical properties of the recombinant human transcription factor Yin Yang 1 with a deletion of C-terminal zinc finger.*
Supervisor: **prof. Andrzej Górecki, PhD, DSc**

2012-2013 **Master of Science in Engineering: Medical Physics; Specialization: Dosimetry and Electronics in Medicine**
Faculty of Physics and Applied Computer Science
AGH University of Science and Technology, Krakow, Poland
Thesis: *The identification and the elimination of clashes in the structure of an Early-Stage intermediate in the protein folding process.*
Supervisor: **prof. Irena Roterman-Konieczna, PhD, DSc**

2008-2012 **Bachelor of Science in Engineering: Medical Physics**
Faculty of Physics and Applied Computer Science
AGH University of Science and Technology, Krakow, Poland
Thesis: *The construction of the 3D protein structure on the basis of given Phi, Psi angles.*
Supervisor: **prof. Irena Roterman-Konieczna, PhD, DSc**

2005-2008 **The August Witkowski 5th High School in Krakow**
Program with extended chemistry, biology, physics and English language

RESEARCH EXPERIENCE

10.2014-present **Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University, Krakow, Poland**
PhD candidate, group of prof. Zenon Rajfur, PhD, DSc
- Application of optical tweezers in cell biology;
- Studies on role of electric field and culture substrate stiffness in activation of Rho family proteins in cell migration;
- Studies on influence of culture substrate stiffness on cell protrusion-retraction dynamics and talin recruitment;
- Development of microscopy image reconstruction and analysis software.

03-09.2020 **National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda MD, USA**
Special Volunteer, group of dr. Clare Waterman, PhD
- Microscopy data analysis.

07-09.2019 **Oncology and Pathology - Kamprad Lab, Faculty of Medicine, Lund University, Lund, Sweden**
Visiting Research Fellow, group of dr. Vinay Swaminathan, PhD
- Training in research methods used for study of focal adhesion and cytoskeleton proteins organisation at molecular level.

03-12.2018 **Markey Cancer Center, College of Medicine, University of Kentucky, Lexington, KY, USA**
Visiting Scholar, group of prof. Cai Huang, PhD
- Studies on the role of talin2 in regulation of matrix metallopeptidase 9 secretion in breast cancer cells;
- Studies on the role of cyanidin-3-O-glucosidase in regulation of interaction between talin and integrin β1 in breast and colon cancer cells adhesion and metastasis.

02-03.2017 **Albert Einstein College of Medicine, Bronx, NY, USA**
Visiting Research Fellow, group of prof. Louis Hodgson, PhD
- Training in Rho family FRET biosensors imaging and analysis.

04.2016 **Istituto Italiano di Tecnologia, Genoa, Italy**
Visiting Research Fellow, group of dr. Francesco Difato, PhD
- Development of MATLAB based software for optical tweezers calibration and experiment analysis;

02.2013-09.2014 **Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland**
Undergraduate student, group of prof. Andrzej Górecki, PhD, DSc
- Determination of optimal parameters for bacterial expression and purification of 3 zinc finger mutant of Yin Yang 1 human transcription factor (Y3F);
- Analysis of chemo-physical properties of Y3F in using fluorescence anisotropy spectroscopy and Size Exclusion Chromatography (SEC).

10.2011-10.2013 **Department of Bioinformatics and Telemedicine, Jagiellonian University Medical College, Krakow, Poland**
02.2012 – 10.2013 **Graduate student**, group of prof. Irena Roterman-Konieczna, PhD, DSc
- Designing a JAVA-based software for finding and solving molecular clashes in a 3D protein structure constructed based on a theoretical model.

10.2011 – 02.2012 **Undergraduate student**, group of prof. Irena Roterman-Konieczna, PhD, DSc
- Designing a JAVA-based software for generation a 3D protein structure, based on its primary structure and given dihedral angles.

07.2012 **Adamed Sp. z o.o., Pieńków, Poland**
Student intern in biochemistry
- Training in biochemical and bioinformatical drug designing.

08.2011 **Holy Cross Cancer Center, Kielce, Poland**
Student intern in medical imaging
- Training in radiotherapy and medical imaging methods.

08.2010 **Regional Blood Donation Centre, Krakow, Poland**
Student intern in a medical analytical laboratory
- Training in preparation of blood-derived pharmaceuticals.

TEACHING EXPERIENCE

CLASSES TAUGHT
- Undergraduate level:
  - Physics – laboratories (levels: basic, advanced);
  - Physics – practical classes (levels: basic);
  - Optics and Electromagnetism – demonstrations along lectures.
- Graduate level:
  - Contemporary optical microscopy – seminars;
  - Specialization Laboratory (Medical Physics and Molecular Biophysics): Fluorescence Confocal Microscopy.

STUDENT SUPERVISION
- Laboratory supervision over 3 undergraduate students.

TEACHING COURSES ATTENDED
- Jagiellonian University Ars Docendi:
  - Ars Docendi Basic course;
  - Master-Disciple relationship: mentoring-coaching-tutoring;
  - The art of test writing;
  - The alchemy of a successful thesis;
  - The art of communication.
- Jagiellonian Interdisciplinary PhD Programme: Academic Teaching. Methodology of teaching and assessment.

OTHER TEACHING EXPERIENCE
04-09.2011 **Stanislaw Lem Science Garden, Museum of Municipal Engineering, Krakow, Poland**
Presenter of an outdoor science exhibition
- Demonstration of scientific experiments;
- Guiding scientific presentation tours for various age groups (pre-school, primary and high schools, students, adults including science teachers).

PROJECTS AND GRANTS

07.2020-present **FPAACS, Jagiellonian University, MNS 2020**: [Increasing the accuracy of FRET-biosensors-based protein activity measurements]
06.2019-present **NSC Poland, PRELUDIUM 16**: Influence of culture substrate elasticity on talin recruitment to focal adhesion
10.2019-09.2020 **NSC Poland, ETIUDA 7**: [Activity of migration-related proteins in cells]

07.2019-04.2020 **FPAACS, Jagiellonian University, MNS 2019**: [Influence of culture substrate elasticity on ITGB1 recruitment to focal adhesion]
07.2018-02.2019 **FPAACS, Jagiellonian University, DSC 2018**: [Influence of culture substrate elasticity on activation of Rac1 protein]
04.2017-02.2018 **FPAACS, Jagiellonian University, DSC 2017:** [Dynamics of small G proteins in cell migration]
05.2015-04.2016 **FPAACS, Jagiellonian University, DSC 2015:** [Eukaryotic cells behavior on elastic substrates]

AWARDS

10.2017-09.2020 Pro-quality **scholarship** for the best PhD students, Jagiellonian University, Krakow, Poland
10.2019-06.2020 Dean's **scholarship** for the best PhD students, Jagiellonian University, Krakow, Poland
02.2020 Pro-quality **award** for high influence publications, Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University, Krakow, Poland
09.2019 American Society for Cell Biology **Travel Award**
09.2018 Pro-quality **award** for high influence publications, Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University, Krakow, Poland
10.2017-06.2018 Dean's **scholarship** for the best PhD students, Jagiellonian University, Krakow, Poland
02.2018 Pro-quality **award** for high influence publications, Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University, Krakow, Poland
03.2012-02.2013 **Scholarship** for the best students of Polish Ministry of Science and Higher Education's subsidized major: graduate studies in Medical Physics, Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland
10.2009-06.2012 Dean's **scholarship** for the best students, AGH University of Science and Technology, Krakow, Poland

ACADEMIC SERVICE

JOURNAL SERVICE

2020-present Guest r**eviewer** for MDPI journals
2015 Guest **reviewer** for *Acta Biochimica Polonica*

SCIENTIFIC ORGANIZATIONS

2018-present Member of Société de Biologie Cellulaire de France
2017-present Member of The Biophysical Society
2018-2020 Member of The American Society for Cell Biology

UNIVERSITY SERVICE

2016-2018 **PhD Student Association representative** in the Jagiellonian University Faculty of Physics, Astronomy and Applied Computer Science Council
2016-2018 **PhD Student Association representative** in the Jagiellonian University Institute of Physics Council
2009-2013 **Member of KERMA the Medical Physics Students' Scientific Group**
Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland
2010/11 – president
2009/10 – vice-president

OTHER EXPERIENCE

2007-2020 **Polish Red Cross' Rescue Team, Krakow, Poland**
Rescuer
07-08.2015 **ESL Language Course**
Hansa Language Center, Toronto, Canada
2009-2014 **SLOT Krakow, Poland**
Organizer-volunteer of Krakow SLOT Fest
- Transport and logistics;
- Technical support;
- Even organization;
- Science shows.

07-08.2013 **ESL Language Course**
Hansa Language Center, Toronto, Canada

SKILLS

LABORATORY SKILLS:

- Optical microscopy including:
  - Live cell imaging;
  - Widefield microscopy (Bright-field, Dark-field, DIC, Phase-contrast, Polarization contrast);
  - Multichannel fluorescence microscopy;

  - Scanning confocal microscopy;
  - Total Internal Reflection Fluorescence Microscopy (TIRF);
  - Fluorescence Life-time Imaging Microscopy (FLIM);
  - Förster Resonance Energy Transfer (FRET) imaging in intensity and time domain;
  - Colocalization microscopy including Proximity Ligation Assay (PLA);
- Optical manipulation with Optical Tweezers Technique;
- Optical spectroscopy including:
  - Absorption spectroscopy;
  - Fluorescence spectroscopy;
  - Fluorescence anisotropy spectroscopy;
  - Circular dichroism spectroscopy;
- Biological laboratory skills:
  - Cancer and normal cells culturing;
  - Sample preparation for fluorescence microscopy imaging;
  - Molecular biology sample preparation;
  - Plasmid cloning and purification in competent bacterial system;
  - Gel electrophoresis;
  - Column chromatography techniques: affinity chromatography and size-exclusion chromatography (SEC);
- Basic knowledge in bioinformatical and molecular modelling tools and databases.

COMPUTER SKILLS:

- MS Windows (semi-advanced level) and Linux (elementary level) environments;
- MS Office: Excel, Word, PowerPoint (semi-advanced levels);
- Skills in programs or programing languages:
  - ImageJ (including macros and JAVA – ImageJ implementation; advanced level);
  - Zeiss ZEN (semi-advanced level);
  - NIS-Elements AR (semi-advanced level);
  - JAVA (semi-advanced level);
  - Wolfram Mathematica (semi-advanced level);
  - OriginLab (semi-advanced level);
  - Matlab (elementary level);
  - Arduino/C++ (elementary level);
  - Python (elementary level).

LANGUAGE SKILLS:

- Polish (native);
- English (fluent, TOEFL iBT: 100; August 29th, 2015).

OTHER SKILLS:

- Driving license (EU category B) – since April 2011;
- Advanced First Aid Course (64 h), 2016.

PUBLICATIONS

REFEREED ARTICLES

- Adamczyk, O., **Baster, Z.**, Szczypior, M. & Rajfur, Z. Substrate Stiffness Mediates Formation of Novel Cytoskeletal Structures in Fibroblasts during Cell–Microspheres Interaction. *Int. J. Mol. Sci.* **22(2)**, 960 (2021).
- Witko, T., **Baster, Z.**, Rajfur, Z., Sofińska, K. & Barbasz, J. Increasing AFM colloidal probe accuracy by Optical Tweezers. *Sci. Rep.* **11(1)**, 509 (2021).
- Bednarz, A., Lipiński, P., Starzyński, R. R., Tomczyk, M., Kraszewska, I., Herman, S., Kowalski, K., Gruca, E., Jończy, A., Mazgaj, R., Szudzik, M., Rajfur, Z., **Baster, Z.**, Józkowicz, A. & Lenartowicz, M. Exacerbation of Neonatal Hemolysis and Impaired Renal Iron Handling in Heme Oxygenase 1-Deficient Mice. *Int. J. Mol. Sci.* **21,** 7754 (2020).
- **Baster, Z.** & Rajfur, Z. BatchDeconvolution: a Fiji plugin for increasing deconvolution workflow. *Bio-Algorithms and Med-Systems* **16,** (2020).
- **Baster, Z.**, Li, L., Rajfur, Z. & Huang, C. Talin2 mediates secretion and trafficking of matrix metallopeptidase 9 during invadopodium formation. *Biochim. Biophys. Acta - Mol. Cell Res.* **1867**, 118693 (2020).
- **Baster, Z.**, Li, L., Kukkurainen, S., Chen, J., Pentikäinen, O., Győrffy, B., Hytönen, V. P., Zhu, H., Rajfur, Z. & Huang, C. Cyanidin-3-glucoside binds to talin and modulates colon cancer cell adhesions and 3D growth. *FASEB J.* **34**, 2227–2237 (2020).
- Bednarz, A., Lipiński, P., Starzyński, R. R., Tomczyk, M., Nowak, W., Mucha, O., Ogórek, M., Pierzchała, O., Jończy, A., Staroń, R., Śmierzchalska, J., Rajfur, Z., **Baster, Z.**, Józkowicz, A. & Lenartowicz, M. Role of the kidneys in the redistribution of heme-derived iron during neonatal hemolysis in mice. *Sci. Rep.* **9,** 11102 (2019).

- Ogórek, M., Herman, S., Pierzchała, O., Bednarz, A., Rajfur, Z., **Baster, Z.**, Grzmil, P., Starzyński, R. R., Szudzik, M., Jończy, A., Lipiński, P. & Lenartowicz, M. Molecular machinery providing copper bioavailability for spermatozoa along the epididymial tubule in mouse. *Biol. Reprod.* **100,** 1505–1520 (2019).
- Bartnicka, D., Karkowska-Kuleta, J., Zawrotniak, M., Satała, D., Michalik, K., Zielinska, G., Bochenska, O., Kozik, A., Ciaston, I., Koziel, J., Dutton, L. C., Nobbs, A. H., Potempa, B., **Baster, Z.**, Rajfur, Z., Potempa, J. & Rapala-Kozik, M. Adhesive protein-mediated cross-talk between Candida albicans and Porphyromonas gingivalis in dual species biofilm protects the anaerobic bacterium in unfavorable oxic environment. *Sci. Rep.* **9,** 4376 (2019).
- Gadzała, M., Dułak, D., Kalinowska, B., **Baster, Z.**, Bryliński, M., Konieczny, L., Banach, M. & Roterman, I. The aqueous environment as an active participant in the protein folding process. *J. Mol. Graph. Model.* **87,** 227–239 (2019).
- Durak-Kozica, M., **Baster, Z.**, Kubat, K. & Stępień, E. 3D visualization of extracellular vesicle uptake by endothelial cells. *Cell. Mol. Biol. Lett.* **23,** 57 (2018).
- Owczarek, K., Szczepanski, A., Milewska, A., **Baster, Z.**, Rajfur, Z., Sarna, M. & Pyrc, K. Early events during human coronavirus OC43 entry to the cell. *Sci. Rep.* **8,** 7124 (2018).
- Szczepanski, A., Owczarek, K., Milewska, A., **Baster, Z.**, Rajfur, Z., Mitchell, J. A. & Pyrc, K. Canine respiratory coronavirus employs caveolin-1-mediated pathway for internalization to HRT-18G cells. *Vet. Res.* **49,** 55 (2018).
- Milewska, A., Nowak, P., Owczarek, K., Szczepanski, A., Zarebski, M., Hoang, A., Berniak, K., Wojarski, J., Zeglen, S., **Baster, Z.**, Rajfur, Z. & Pyrc, K. Entry of human coronavirus NL63 into the cell. *J. Virol.* **92,** e01933-17 (2018).
- Karkowska-Kuleta, J., Bartnicka, D., Zawrotniak, M., Zielinska, G., Kierońska, A., Bochenska, O., Ciaston, I., Koziel, J., Potempa, J., **Baster, Z.**, Rajfur, Z. & Rapala-Kozik, M. The activity of bacterial peptidylarginine deiminase is important during formation of dual-species biofilm by periodontal pathogen Porphyromonas gingivalis and opportunistic fungus Candida albicans. *Pathog. Dis.* **76,** fty033 (2018).
- Ogórek, M., Lenartowicz, M., Starzyński, R., Jończy, A., Staroń, R., Doniec, A., Krzeptowski, W., Bednarz, A., Pierzchała, O., Lipiński, P., Rajfur, Z., **Baster, Z.**, Gibas-Tybur, P. & Grzmil, P. Atp7a and Atp7b regulate copper homeostasis in developing male germ cells in mice. *Metallomics* **9,** 1288-1303 (2017).
- Lenartowicz, M., Starzyński, R. R., Jończy, A., Staroń, R., Antoniuk, J., Krzeptowski, W., Grzmil, P., Bednarz, A., Pierzchała, O., Ogórek, M., Rajfur, Z., **Baster, Z.** & Lipiński, P. Copper therapy reduces intravascular hemolysis and derepresses ferroportin in mice with mosaic mutation (Atp7a $^{mo\text{-}ms}$): An implication for copper-mediated regulation of the Slc40a1 gene expression. *Biochim. Biophys. Acta - Mol. Basis Dis.* **1863,** 1410–1421 (2017).
- **Baster, Z.**, Lasota, S., Witko, T., Zimolag, E., Sroka, J., Madeja, Z. & Rajfur, Z. Migration-related protein activity in cell electrotaxis. *Acta Phys. Pol. B* **48,** 1727 (2017).
- Lasota, S., **Baster, Z.**, Witko, T., Zimoląg, E., Sroka, J., Rajfur, Z. & Madeja, Z. [FRET-based biosensors in cell migration research]. *Postepy Biochem* **63,** 16–33 (2017).
- **Baster, Z.** The identification and the elimination of clashes in the structure of an early-stage intermediate in the protein folding process. *Bio-Algorithms and Med-Systems* **9,** 199–207 (2013).
- Kalinowska, B., Alejster, P., Sałapa, K., **Baster, Z.** & Roterman, I. Hypothetical in silico model of the early-stage intermediate in protein folding. *J. Mol. Model.* **19,** 4259–4269 (2013).

BOOK CHAPTERS

- Roterman, I., Konieczny, L., Banach, M., Marchewka, D., Kalinowska, B., **Baster, Z.**, Tomanek, M. & Piwowar, M. Simulation of the Protein Folding Process in *Comput. Methods to Study Struct. Dyn. Biomol. Biomol. Process.* (ed. Liwo, A.) **1,** 599–638 (Springer Berlin Heidelberg, 2014).
- Jurkowski, W., **Baster, Z.**, Dułak, D. & Roterman-Konieczna, I. The Early-Stage Intermediate in *Protein Fold. Silico Protein Fold. Versus Protein Struct. Predict.* (ed. Roterman-Konieczna, I.) 1–20 (Elsevier, 2012).

PATENTS

- Barbasz J., Witko T. & **Baster Z.**, *[Method for determination of a force constant of a "colloidal probe" type lever for the atomic force microscope]*. Polish Patent no. P.422059 - pending (2017)

CONFERENCE PROCEEDINGS

- **Baster, Z.** & Rajfur, Z. The Influence of Substrate Elasticity on Cell Adhesion Mechanisms. *Biophys. J.* **118**, 250a-251a (2020).
- **Baster, Z.**, Li, L., Huang, C. & Rajfur, Z. Blocking Interaction between Talin2 and β1-integrin Inhibits Matrix Metalopeptidase 9 Secretion in Breast Cancer Cells. *Mol. Biol. Cell* **30**, P296 (2019).
- **Baster, Z.**, Li, L., Rajfur, Z. & Huang, C. Talin2 regulates the trafficking and secretion of matrix metallopeptidase 9. *Mol. Biol. Cell* **29,** P3010 (2018).
- **Baster, Z.**, Witko, T. & Rajfur, Z. Influence of Mechanical Environmental Factors on Cell Migration Phenomenon. *Biophys. J.* **114,** 518a (2018).
- **Baster, Z.**, Lasota, S., Witko, T., Zimoląg, E., Sroka, J., Madeja, Z., Hodgson, L. & Rajfur, Z. Protein activation dynamics measurements in migrating cells using FRET in time domain, *III International Conference of Cell Biology book of abstracts*, Krakow, Poland, (2017).
- **Baster Z.,** Witko T., Lasota S., Mielnicka A., Solarz D., Zimoląg E., Sroka J., Madeja Z., Hodgson L. & Rajfur Z. [Endogenous FRET biosensors in cell migration studies], *Książka Abstraktów VI Konferencja Biologii Molekularnej*, Lodz, Poland (2017).

- Mielnicka, A., Solarz, D., **Baster, Z.**, Witko, T., Rajfur, Z. & Sroka, J. [Influence of polyacrylamide substrate elasticity on Walker WC 256 rat carcinosarcoma cell migration], *Książka Abstraktów VI Konferencja Biologii Molekularnej*, Lodz, Poland (2017).
- Solarz, D., Mielnicka, A., Witko, T., **Baster, Z.** & Rajfur, Z. [Influence of mechanical parameters of elastic polyacrylamide substrate on cell morphology], *Książka Abstraktów VI Konferencja Biologii Molekularnej*, Lodz, Poland (2017).
- **Baster, Z.**, Lasota, S., Witko, T., Zimoląg, E., Sroka J., Madeja, Z., Hodgson, L. & Rajfur, Z. Protein activation dynamics measurements in migrating cells using FRET in time domain, *Conference materials: 11th Workshop and Conference on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques*, Prague, Czechia (2016).
- Tomanek, M., Roterman, I., Kalinowska, B., **Baster, Z.**, Dulak, D. & Szepieniec, T. Protein folding simulations of '3D Gauss accordant' structures, *Bio-Algorithms and Med-Systems* **11**, eA2 (2015).
- **Baster, Z.,** Witko, T., Rajfur, Z, Optical Trapping Systems for Biology., *Książka Abstraktów Ogólnopolska Konferencja Studentów Fizyki Medycznej pt. "Fizyka dla Medyka"* , pp. 18, Krakow, Poland, (2015).
- **Baster Z.** & Witko T. [Dependence of Φ and the Ψ dihedral angles on distances between atoms in proteins], *Książka Abstraktów Konferencja Liczby Komputery Życie 2015*, pp. 14, Krakow, Poland (2015).
- **Baster Z.**, Witko T., Rajfur Z. UFO in Biology. Optical Tweezers in Theory and Practice*, Książka Abstraktów IV International Conference of Biophysics Students*, pp. 13, Krakow, Poland (2015).
- Witko T., **Baster Z. &** Rajfur Z. Combining patch clamp technique with advanced optical microscopy methods to study electromechanical properties of the cell., *Książka Abstraktów IV International Conference of Biophysics Students*, pp. 81, Krakow, Poland, (2015).
- Tomanek M., Roterman I., Sterzel M., Szepieniec T., Kalinowska B., **Baster Z.** & Dułak D. Protein Folding Simulations. In: K. Wiatr, J. Kitowski, M. Bubak (Eds) *Proceedings of the Seventh ACC Cyfronet AGH Users' Conference,* ACC CYFRONET AGH, Krakow, Poland, ISBN 978-83-61433-09-5, pp. 59-60 (2014).
- Tomanek M., Roterman I., Szepieniec T., Sterzel M., Kalinowska B., **Baster Z.** & Dulak D. Simulations in Bioinformatics. In: M. Bubak, M. Turała, K. Wiatr (Eds) *CGW'13 Proceedings*, ACC CYFRONET AGH, Krakow, Poland. ISBN 978-83-61433-08-8, pp. 41-42 (2013).
- Roterman I., Tomanek M., Sterzel M., Szepieniec T., Kalinowska B., **Baster Z.** & Dułak D. Managing Protein Folding Process with Intelligent Process Parameters Adjustment. In: K. Wiatr, J. Kitowski, M. Bubak (Eds) *Proceedings of the Sixth ACC Cyfronet AGH Users' Conference*, ACC CYFRONET AGH, Krakow, Poland, ISBN 978-83-61433-07-1, pp. 9-12 (2013).
- Roterman I., Tomanek M., Sterzel M., Szepieniec T., Kalinowska B., **Baster Z.** & Dułak D. Managing Protein Folding Process as Workflow Model with Wise Data Selection. In: M. Bubak, M. Turała, K. Wiatr (Eds) *CGW'12 Proceedings*, ACK CYFRONET AGH, Krakow, Poland, ISBN 978-83-61433-06-4, pp. 93-94 (2012).
- Roterman I., Kalinowska B. & **Baster Z.** Structural form for early stage protein folding process simulation. In: *Modeling & Design of Molecular Materials 2012, Wroclaw, Poland, September 10-14, 2012: conference information & abstracts*, pp. P77B (2012).
- **Baster Z.** & Sulik B. [Second life of „biofuel" – ATP: Energy source, hormone, neurotransmitter… and what else?] In: L. Kurcz, A. Gołdasz (Eds) *Sesje studenckich kół naukowych: Materiały XLVII Sesji Pionu Hutniczego*, Volume 1, Wydawnictwo Studenckiego Towarzystwa Naukowego, Krakow, Poland, ISSN 1732-2529, pp. 34 (2010).

CONFERENCES, SEMINARS AND WORKSHOPS ATTENDANCE

- **Cell Bio** Virtual 2020**,** 2-16.12.2020, On-line,
- 64th Annual **Meeting of Biophysical Society,** 15-19.02.2020, San Diego, CA, USA, **poster**: *The Influence of Substrate Elasticity on Cell Adhesion Mechanisms*.
- 2019 **ASCB | EMBO Annual Meeting,** 7-11.12.2019, Washington, DC, USA, **poster**: *Blocking Interaction between Talin2 and β1-integrin Inhibits Matrix Metalopeptidase 9 Secretion in Breast Cancer Cells*.
- [XIII **Confocall Microscopy Users Meeting**], 22-24.10.2019, Goczalkowice-Zdroj, Poland
- 6th **International Congress** on Microscopy and Spectroscopy (INTERM), 12-18.05.2019, Oludeniz, Turkey, **oral presentation**: *Genetically encoded FRET biosensors in cell migration biomechanical studies.*
- 2018 **ASCB | EMBO Annual Meeting,** 8-12.12.2018, San Diego, CA, USA, **poster**: *Talin2 regulates the trafficking and secretion of matrix metallopeptidase 9*.
- 62nd Annual **Meeting of Biophysical Society,** 17-21.02.2018, San Francisco, CA, USA, **poster**: *Influence of Mechanical Environmental Factors on Cell Migration Phenomenon*.
- Single-Molecule **Workshop** 2017, 20-21.06.2017. Amsterdam, Netherlands, **oral presentation**
- **1st International Workshop** on PET and MR Imaging, 03.06.2017, Krakow, Poland, **poster**: *Migration-related protein activity in cell electrotaxis*.
- III **International Conference** of Cell Biology, 26-27.05.2017, Krakow, Poland, **poster**: *Protein activation dynamics measurements in migrating cells using FRET in time domain.*
- [VI Molecular Biology **Conference]**, 6-8.04.2017, Lodz, Poland, **oral presentation**: *[Endogenous FRET biosensors in cell migration research*] (**best presentation award)**.

- [V Polish **Conference** of Medical Physics Students pt. "*Physics for Medics*", 31.03-02.04.2017, Krakow, Poland, **oral presentation**: [*UFO in Biology. Optical Tweezers in Theory and Practice].*
- 61st Annual **Meeting of Biophysical Society,** 11-15.02.2017 New Orleans, LA, USA, **poster**: *Migration-related protein activity in cell electrotaxis*.
- European **Summer School** 2016, "Physics of Living Matter", 04-08.07.2016, Strasbourg, France, **poster**: *Modern optical methods in cell biophysics*.
- 11th **Workshop and Conference** on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, 13-15.06.2016, Vestec Czechia, **poster**: *Protein activation dynamics measurements in migrating cells using FRET in time domain.*
- [VI **student conference** „Modern experimental methods in physics, chemistry and engineering"], 27-29.11.2015 Lublin, Poland, **oral presentation**: [*UFO in Biology. Optical Tweezers in Theory and Practice]*.
- IV **International Conference** of Biophysics Students, 22-24.05.2015, Krakow, Poland, **oral presentation**: *UFO in Biology. Optical Tweezers in Theory and Practice*.
- **[Conference** Numbers Computers Life] 2015, 15-17.05.2015, Krakow, Poland, **poster**: *[Dependence of Φ and the Ψ dihedral angles on distances between atoms in proteins]*.
- **Seminar workshops** „Andor Academy", 12-13.05.2015, Warsaw, Poland.
- [III Polish **Conference** of Medical Physics Students pt. "*Physics for Medics*", 10-12.04.2015, Krakow, Poland, **poster**: *Optical Trapping Systems for Biology*. **(poster awarded).**
- [XLVII **Student Scientific Groups Session]**, 06.05.2010r. Krakow, Poland, **oral presentation**: *[Second life of „biofuel" – ATP: Energy source, hormone, neurotransmitter… and what else?]*.

ACTIVITIES AND INTERESTS

- Juggling, fireshow;
- Tinkering;
- Snowboarding, basketball, sailing;
- Fantasy, Science-Fiction.