

## **BARTOSZ TRZASKOWSKI**

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### **Academic Experience**

[University of Warsaw, Warszawa, Poland]

**[Professor]**

**January 2023 – present**

**[Associate professor]**

**June 2017 – December 2022**

**[Assistant professor]**

**January 2013 – June 2017**

Group leader of the Chemical and Biological Systems Simulation Lab, leads project in computational chemistry, catalysis, physical organic chemistry, biochemistry and biophysics. PI in five National Science Centre of Poland grants in catalysis (total budget > 7M PLN) as well as grants of the National Centre for Research and Development of Poland and National Academic Exchange Agency of Poland

[University of Warsaw, Warszawa, Poland]

**[Lecturer]**

**August 2010 - December 2012**

Worked in scientific projects in computational biology, medicinal chemistry, theoretical drug design and quantum chemistry (key personnel in the National Science Center grant “Fluorescent sensors and anion transporters based on 1,8-diaminokarbazol scaffold”; key personnel in the Polpharma Foundation grant “Identification of a new chemical compound inhibiting biological effects of interleukin 15 through a selective inhibition of IL-15A receptor”).

[California Institute of Technology, Pasadena, USA]

**[Postdoctoral scholar]**

**June 2008 – August 2010**

Advisor: William A. Goddard III

Worked in scientific projects in computational biology, medicinal chemistry, theoretical drug design and quantum chemistry (key personnel in the PharmSelex grant “Prediction of Structures and Ligands for GPCRs”; key personnel in the Chevron grant “Low-temperature methane-to-methanol oxidation”).

[University of Arizona, Tucson, USA]

**[Postdoctoral scholar]**

**October 2005 – June 2008**

Advisor: Ludwik Adamowicz

Worked in scientific projects in bionanotechnology, materials science and computational physical chemistry (key personnel in the National Science Foundation NIRT grant “Electroless Plating of Protein Templates for the Fabrication of Straight Nanowires on Silicon”). Served as graduate and undergraduate mentor.

[University of Warsaw, Warszawa, Poland]

**[PhD student]**

**October 2001 – October 2008**

Advisor: Andrzej Les

Worked in scientific projects in computational biochemistry and chemistry (principal investigator of the Polish Ministry of Scientific Research and Information Technology grant “Quantum mechanical study of the solvolysis of CMP-NeuAc and its application in modelling of sialyltransferase inhibitors”, key personnel in the Interdisciplinary Centre for Mathematical and

Computational Modelling grant “From intermolecular interaction towards crystal structure and supramolecular chemistry”). Co-taught graduate level courses (Quantum Chemistry, Preliminary Informatics, Advanced Informatics) for the Bachelor and Master of Science in Chemistry program. Shared responsibility for lectures, exams, homework assignments and grades.

## Education

### Full professorship, Chemistry, January 2023

[University of Warsaw, Warszawa, Poland]

### Habilitation, Chemistry, June 2017

- Habilitation topic: “Modelling of structures and reactions paths of ruthenium complexes, potential olefin metathesis catalysts”

### PhD., Chemistry (Quantum and Computational Chemistry), October 2005

- Dissertation topic: “Theoretical model of the nonenzymatic and enzymatic solvolysis of cytidine 5'-monophospho-N-acetylneuraminic acid”
- Advisor: Andrzej Les

### M.Sc., Chemistry (Quantum Chemistry), June 2001

- Dissertation topic: “Octahedral manganese complexes – an introduction to modeling of inhibitors of small cell lung cancer”
- Advisor: Andrzej Les

## Languages

Polish – native

English – fluent (Cambridge Certificate of Proficiency in English)

German – basic

## Recent projects funded

- PI, National Science Centre (NCN), OPUS 22 grant UMO-2021/43/B/ST4/00122, “Bis-carbene ruthenium complexes as specialized olefin metathesis catalysts”, July 2022 – present, University of Warsaw.
- PI, National Science Centre (NCN), OPUS 15 grant UMO-2018/29/B/ST4/00805, “Catenanes as new tools for stereoselective catalysts”, January 2019 – January 2023, University of Warsaw.
- PI, National Science Centre (NCN), BEETHOVEN 2 grant UMO-2016/23/G/ST5/04297, “Anionic Carbenes and Borylanions: Tuning the properties of ruthenium metal complexes in olefin metathesis”, January 2018 – January 2022, University of Warsaw.
- PI, National Science Centre (NCN), SONATA BIS 6 grant UMO-2016/22/E/ST4/00573, “Anionic, cationic and mesoionic analogues of N-heterocyclic carbenes in homogenous catalysis”, May 2017 – May 2021, University of Warsaw.
- PI, National Science Centre (NCN), OPUS 3 grant UMO-2012/05/B/ST5/00715 “New analogues of N-heterocyclic carbenes in Ruthenium-based metathesis catalysts - design, modeling, synthesis, analysis”, March 2013 – March 2016, University of Warsaw.

**Academic prizes/awards**

- Stipend for outstanding young scientists, Ministry of Science and Higher Education (Poland), 2012
- Top 500 Innovators Science - Management - Commercialization award, Polish Ministry of Science and Higher Education (Poland), 2011
- Foundation for Polish Science Homing/Powroty fellowship, 2009-2011
- European Molecular Biology Organization short-term fellowship, 2009
- University of Sydney International Visiting research fellowships, 2009

**Key collaborations**

- Olefin metathesis, prof. Karol Grela, University of Warsaw, Poland
- Homogenous catalysis, prof. Matthias Tamm, TU Braunschweig, Germany
- Boron chemistry, prof. Rene Frank, TU Braunschweig, Germany
- Quantum chemistry methods development, prof. William A. Goddard III, California Institute of Technology, USA
- Quantum chemistry methods development, prof. Henryk Witek, National Yang Ming Chiao Tung University, Taiwan

**Representative publications (out of >140, over 2700 citations, h-index=25 according to Scopus)**

- L. Denker, D. Wullschlager, J.P. Martinez, S. Świerczewski, B. Trzaskowski, M. Tamm, R. Frank, "Cobalt(I) Catalyzed Transformation of Si-H Bonds: H/D Exchange in Hydrosilanes and Hydrosilylation of Olefins", *ACS Catal.*, 13, 2586-2600 (2023).
- A. Marczyk, B. Trzaskowski, "Ruthenium metathesis catalysts bearing anionic N-heterocyclic carbenes; a computational study on failed approaches to their synthesis", *Organometallics*, 42, 689-695 (2023).
- Z. Guven, L. Denker, D. Wullschlager, J.P. Martinez, B. Trzaskowski, R. Frank, "Reductive Al-B sigma-Bond Formation in Alumaboranes: Facile Scission of Polar Multiple Bonds", *Angew. Chem. Int. Ed.*, 61, e202209502 (2022).
- L. Denker, B. Trzaskowski, R. Frank, "'Give Me Five' - An Amino Imidazoline-2-imine Ligand Stabilises First Neutral Five-membered Cyclic Trier(I) Carbenoides", *ChemComm.*, 57, 2816-2819 (2021).
- H. Dolati, L. Denker, B. Trzaskowski, R. Frank, "Superseding  $\beta$ -Diketiminato Ligands: An Amido Imidazoline-2-Imine Ligand Stabilizes the Exhaustive Series of B=X Boranes (X = O, S, Se, Te)", *Angew. Chem. Int. Ed.*, 60, 4633-4639 (2021).
- M. Jawiczuk, K. Młodzikowska-Pieńko, S. Osella, B. Trzaskowski, "Molecular modelling of mechanisms of decomposition of ruthenium metathesis catalysts by acrylonitrile", *Organometallics*, 39, 239-246 (2020).
- B. Żyżyńska-Granica, B. Trzaskowski, M. Dutkiewicz, O. Zegrocka-Stendel, M. Machcińska, K. Bocian, M. Kowalewska, K. Koziak, "The anti-inflammatory potential of cefazolin as common gamma chain cytokine inhibitor", *Sci. Rep.*, 10, 2886, (2020).
- S. Planer, A. Małecki, B. Trzaskowski, A. Kajetanowicz, K. Grela, "Sterically tuned N-heterocyclic carbene ligands for the efficient formation of hindered products in Ru-catalyzed olefin metathesis", *ACS Catalysis*, 10, 11394-11404 (2020)
- P. Małecki, K. Gajda, R. Gajda, K. Woźniak, B. Trzaskowski, A. Kajetanowicz, K. Grela, "Specialized Ruthenium Olefin Metathesis Catalysts Bearing Bulky Unsymmetrical NHC Ligands: Computations, Synthesis and Application", *ACS Catalysis*, 9, 587-598 (2019).

- S. Osella, M. Kiliszek, E. Harputlu, C.G. Unlu, K. Ocakoglu, J. Kargul, B. Trzaskowski, "Controlling the Charge Transfer Flow at the Graphene/Pyrene-Nitrilotriacetic Acid Interface", *J. Mater. Chem. C*, 6, 5046-5054 (2018).
- R. Gawin, A. Tracz, M Chwalba, A. Kozakiewicz, B. Trzaskowski, K. Skowerski, "Cyclic Alkyl Amino Carbene Ruthenium Complexes – Unprecedented Efficiency in Macrocyclization and Acrylonitrile Cross Metathesis", *ACS Catal.*, 7, 5443-5449 (2017).
- B. Żyżyńska-Granica, B. Trzaskowski, S. Niewieczerzal, S. Filipek, O. Zegrocka-Stendel, M. Dutkiewicz, P. Krzeczyński, M. Kowalewska, K. Koziak, "Pharmacophore guided discovery of small-molecule interleukin 15 inhibitors", *Eur. J. Med. Chem.*, 136, 543-547 (2017).
- B. Trzaskowski, K. Grela, "Hoveyda-Grubbs complexes with boryl anions are predicted to be fast metathesis catalysts", *Catal. Commun.*, 86, 133-138 (2016)
- R. Abrol, B. Trzaskowski, W.A. Goddard, A. Nesterov, I. Olave, C. Irons, "Ligand and mutation induced conformational selection in the CCR5 Chemokine G protein-coupled receptor", *Proc. Natl. Acad. Sci. USA*, 111, 13040-13045 (2014)

### Key talks on conferences

- Bartosz Trzaskowski, 2015, "Nitrenium ions and trivalent boron ligands as analogues of N-heterocyclic carbenes in olefin metathesis", 21st International Symposium on Olefin Metathesis and Related Chemistry (ISOM XXI), Graz, Austria
- Bartosz Trzaskowski, 2018, "Design and Modelling of New Metathesis Catalysts for Green Chemistry", 8th International Conference on Green Chemistry, Bangkok, Thailand
- Bartosz Trzaskowski, 2019, "The rise (and no sign of fall) of Ruthenium", Mendeleev 150: 4th International Conference on the Periodic Table, Sankt Petersburg, Russia
- Bartosz Trzaskowski, 2019, "Specialized Ruthenium complexes for homogenous catalysis", 7th Asian Conference on Coordination Chemistry, Kuala Lumpur, Malaysia
- Bartosz Trzaskowski, 2021, "Mechanisms of decomposition of ruthenium olefin metathesis catalysts", 5th EuChemS Conference on Green and Sustainable Chemistry, Thessaloniki, Greece.
- Bartosz Trzaskowski, 2022, "Design and synthesis of new compounds with the boron-chalcogen multiple bond", The Pure and Applied Chemistry International Conference 2022 - PACCON 2022, Bangkok, Thailand.
- Bartosz Trzaskowski, 2023, "Computational methods and approaches for olefin metathesis and homogeneous catalysis", Asia Pacific Conference of Theoretical and Computational Chemistry APATCC-10, Qui Nhon, Vietnam.

### References

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