Paweł Potasz
Nicolaus Copernicus University in Toruń
Department of Quantum Physics,
Grudziądzka 5/7, 87-100 Toruń
ppotasz@umk.pl

List of scientific achievements which present a major contribution to the development of a specific discipline

I. INFORMATION ON SCIENTIFIC ACHIEVEMENTS SET OUT INART. 219 PARA 1. POINT 2 OF THE ACT

2. Cycle of scientific articles related thematically, pursuant to art. 219 para 1. point 2b of the Act;

Cycle of scientific articles related thematically, topic of the series: *Theoretical research on stability of topological phases in selected two dimensional systems*.

H1 **P. Potasz**, M. Xie, A. H. MacDonald, *Exact diagonalization for magic-angle twisted bilayer graphene*, Phys. Rev. Lett. **127**, 147203 (2021).
Points awarded by the Ministry of Science and Higher Education: **200 pkt**
Impact Factor: **9.161**

My contribution consisted in performing all numerical computations. In order to do this, I implemented codes in Fortran language for calculations within exact diagonalization method, in particular for finding the ground state and low energy excited states using Lanczos method (calculations were parallelized using OpenMP inteface). Calculations required codes for generation of many-body Hamiltonian matrix for four types of particles due to two possible spins and two valleys in twisted bilayer graphene. Additionally I implemented Hartree-Fock method in order to compare results with a mean-field approximation. I took part in discussions about the results and their interpretations. I edited, together with A. H. MacDonald, the first draft of the manuscript, and worked on the manuscript at further stages, and I was PI of the research project related to this work (NAWA grant, Bekker's program).

H2 N. Nouri, M. Bieniek, M. Brzezińska, M. Modarresi, S. Zia Borujeni, Gh. Rashedi, A. Wójs, **P. Potasz**, *Topological phases in Bi/Sb planar and buckled honeycomb monolayers*, Phys. Lett. A **382**, 2952–2958 (2018).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.654**

My contribution consisted in proposition to consider this particular scientific problem (together with A. Wójs), run initial numerical computations, analysis and discussion of obtained results, and

substantive supervision over calculations. Initial calculations I performed using implemented by me multi-orbital tight-binding method. I took a part in editing manuscript at each stage.

H3 B. Jaworowski, A.D Güçlü, P. Kaczmarkiewicz, M. Kupczyński, **P. Potasz**, A. Wójs, *Wigner crystallization in topological flat bands,* New J. Phys. **20**, 063023 (2018).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **3.729**

My contribution consisted in proposition to consider this particular scientific problem (together with A. Wójs), analysis of an applied model and ran initial numerical calculations using implemented by me exact diagonalization method and characterization of the ground state using pair correlation function. When more advanced results were obtained, I directed studies proposing additional calculations, I took a part in editing manuscript at each stage.

H4 M. Brzezińska, M. Bieniek, T. Woźniak, **P. Potasz**, A. Wójs, *Entanglement entropy and entanglement spectrum of $Bi_{1-x}Sb_x$ (111) bilayers,* J. Phys.: Condens. Matter **30**, 125501 (2018).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.333**

My contribution consisted in proposition to consider this particular scientific problem (together with A. Wójs), ran initial numerical calculations of entanglement spectra and band structures using tight-binding model. When more advanced results were obtained, I worked on their interpretation and I directed studies proposing additional calculations, I took a part in editing manuscript at each stage and I was PI of the research project related to this work (NCN Sonata grant). My contribution estimate to **30%**.

H5 M. Bieniek, T. Woźniak, **P. Potasz**, *Stability of topological properties of bismuth (111) bilayer*, J. Phys. Condens. Matter **29**, 155501 (2017).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.333**

My contribution consisted in proposition to consider this particular scientific problem, substantive and computational supervision. I obtained initial numerical calculations of band structures using tight-binding model. When more advanced results were obtained, I worked on their interpretation and I directed studies proposing additional calculations, I took a part in editing manuscript at each stage and I was PI of the research project related to this work (NCN Sonata grant). My contribution estimate to **40%**.

H6 B. Jaworowski, A. Manolescu, **P. Potasz**, *Fractional Chern insulator phase at the transition between checkerboard and Lieb lattices,* Phys. Rev. B **92**, 245119 (2015).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

My contribution consisted in proposition to consider this particular scientific problem (together with A. Wójs), substantive and computational supervision. I obtained initial numerical calculations of band structures using tight-binding model and many-body effects using exact diagonalization method (using codes implemented by me). I took part in interpreting the results and I directed studies proposing additional calculations. I took a part in editing manuscript at each stage and I was PI of the research project related to this work (MNiSW Iuventus Plus grant). My contribution estimate **45%**.

H7 **P. Potasz**, J. Fernandez-Rossier, *Orbital magnetization of quantum spin Hall insulator nanoparticles*, Nano Letters **15**, 5799-5803 (2015).
Points awarded by the Ministry of Science and Higher Education: **200 pkt**
Impact Factor: **11.189**

My contribution consisted in performing all numerical computations. In order to do this I implemented codes for energy spectra calculations of quantum dots of various shape, which consisted of few to few millions of orbitals. In order to diagonalize Hamiltonian matrix I used implemented by me Lanczos method (calculations were parallelized using OpenMP interface). I took part in discussions about the results and their interpretations. I edited the first draft of the manuscript, and next worked on the manuscript at further stages, and I was PI of the research project related to this work (MNiSW Mobilność Plus grant). My contribution estimate to **85%**.

II. INFORMATION ON SCIENTIFIC ACTIVITY

(* indicates the positions not included in the series in point I.2)

1. List of published scientific monographs:

M1* A. D. Güçlü, **P. Potasz**, M. Korkusinski, P. Hawrylak, *Graphene Quantum Dots*, Springer Berlin Heidelberg, ISBN: 978-3-662-44610-2 (2014).

4. List of articles published in scientific journals (indicating the positions not included in the series in point I.2).

Impact factors and the points awarded by the Ministry of Science and Higher Education are given according to: https://www.gov.pl/web/edukacja-i-nauka/nowy-rozszerzony-wykaz-czasopism-naukowych-i-recenzowanych-materialow-z-konferencji-miedzynarodowych and basis: https://academic-accelerator.com/Impact-of-Journal.

4.1. Articles published before obtaining the PhD degree:

D1 W. Sheng, M. Korkusiński, A. D. Güçlü, M. Zieliński, **P. Potasz**, E. S. Kadantsev, O. Voznyy, P. Hawrylak, *Electronic and optical properties of semiconductor and graphene quantum dots*, Frontiers of Physics **7 (3)**, pp. 328-352 (2012).

Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **3.563**

D2 **P. Potasz**, A. D. Güçlü, A. Wójs, P. Hawrylak, *Electronic properties of gated triangular graphene quantum dots: Magnetism, correlations, and geometrical effects*, Phys. Rev. B **85**, 075431 (2012).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

D3 A. D. Güçlü, **P. Potasz**, P. Hawrylak, *Electric-field controlled spin in bilayer triangular graphene quantum dots*, Phys. Rev. B **84**, 035425 (2011).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

D4 **P. Potasz**, A. D. Güçlü, O. Voznyy, J. A. Folk, P. Hawrylak, *Electronic and magnetic properties of triangular graphene quantum rings*, Phys. Rev. B **83**, 174441 (2011).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

D5 O. Voznyy, A. D. Güçlü, **P. Potasz**, and P. Hawrylak, *Effect of edge reconstruction and passivation on zero-energy states and magnetism in triangular graphene quantum dots with zigzag edges*, Phys. Rev. B **83**, 165417 (2011).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

D6 **P. Potasz**, A. D. Güçlü, P. Hawrylak, *Spin and electronic correlations in gated graphene quantum rings*, Phys. Rev. B **82**, 075425 (2010).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

D7 A. D. Güçlü, **P. Potasz**, P. Hawrylak, *Excitonic absorption in gate-controlled graphene quantum dots*, Phys. Rev. B **82**, 155445 (2010).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

D8 **P. Potasz**, A. D. Güçlü, P. Hawrylak, *Zero-energy states in triangular and trapezoidal graphene structures*, Phys. Rev. B **81**, 033403 (2010).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

D9 A. D. Güçlü, **P. Potasz**, O. Voznyy, M. Korkusiński, P. Hawrylak, *Magnetism and correlations in fractionally filled degenerate shells of graphene quantum dots*, Phys. Rev. Lett. **103**, 246805 (2009).
Points awarded by the Ministry of Science and Higher Education: **200 pkt**
Impact Factor: **9.161**

D10 **P. Potasz**, A. D. Güçlü, P. Hawrylak, *Electronic shells of Dirac Fermions in graphene*

quantum rings in a magnetic field, Acta Phys. Polonica A **116**, 832-834 (2009).
Points awarded by the Ministry of Science and Higher Education: **40 pkt**
Impact Factor: **0.577**

4.2. Articles published after obtaining the PhD degree (* indicates the positions not included in the series in point I.2):

E1* N. Morales-Durán, Nai Chao Hu, **P. Potasz**, A. H. MacDonald, Nonlocal Interactions in Moiré Hubbard Systems, Phys. Rev. Lett. **128** (21), 217202 (2022).
Points awarded by the Ministry of Science and Higher Education: **200 pkt**
Impact Factor: **9.161**

E2 **P. Potasz**, M. Xie, A. H. MacDonald, Exact diagonalization for magic-angle twisted bilayer graphene, Phys. Rev. Lett. **127**, 147203 (2021).
Points awarded by the Ministry of Science and Higher Education: **200 pkt**
Impact Factor: **9.161**

E3* N. Morales-Durán, **P. Potasz**, A. H. MacDonald, Metal-insulator transition in transition metal dichalcogenide heterobilayer moire superlattices, Phys. Rev. B **103** (24), L241110 (2021).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

E4* R. Plumadore, M. Baskurt, J. Boddison-Chouinard, G. Lopinski, M. Modarresi, **P. Potasz**, P. Hawrylak, H. Sahin, F. M Peeters, A. Luican-Mayer, Prevalence of oxygen defects in an in-plane anisotropic transition metal dichalcogenide, Phys. Rev. B **102**, 205408 (2020).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

E5 B. Jaworowski, A.D Güçlü, P. Kaczmarkiewicz, M. Kupczyński, **P. Potasz**, A. Wójs, Wigner crystallization in topological flat bands, New J. Phys. **20**, 063023 (2018).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **3.729**

E6* B. Jaworowski, P. Kaczmarkiewicz, **P. Potasz**, A. Wójs, Interband excitations in the 1D limit of two-band fractional Chern insulators, Phys. Lett. A **382**, 1419–1426 (2018).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.654**

E7 N. Nouri, M. Bieniek, M. Brzezinnska, M. Modarresi, S. Zia Borujeni, Gh. Rashedi, A. Wójs, **P. Potasz**, Topological phases in Bi/Sb planar and buckled honeycomb monolayers, Phys. Lett. A **382**, 2952–2958 (2018).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.654**

E8 M. Brzezińska, M. Bieniek, T. Woźniak, **P. Potasz**, A. Wójs, Entanglement entropy and entanglement spectrum of $Bi_{1-x}Sb_x$ (111) bilayers, J. Phys.: Cond. Mat. **30**, 125501 (2018).

Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.333**

E9* M. Bieniek, M. Korkusiński, L. Szulakowska, **P. Potasz**, I. Ozfidan, P. Hawrylak, Band nesting, massive Dirac Fermions and Valley Lande and Zeeman effects in transition metal dichalcogenides: a tight-binding model, Phys. Rev. B **97**, 085153 (2018).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

E10 M. Bieniek, T. Woźniak, **P. Potasz**, Stability of topological properties of bismuth (111) bilayer, J. Phys. Condens. Matter **29**, 155501 (2017).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.333**

E11* P. Bugajny, L. Szulakowska, B. Jaworowski, **P. Potasz**, Optical properties of geometrically optimized graphene quantum dots, Physica E **85**, 294-301 (2017).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **3.382**

E12* M. Bieniek, T. Woźniak, **P. Potasz**, Study of Spin–Orbit Coupling Effect on Bismuth (111) Bilayer, Acta Phys. Polonica A **130**, 609-612 (2016).
Points awarded by the Ministry of Science and Higher Education: **40 pkt**
Impact Factor: **0.577**

E13* A. Piekarska, **P. Potasz**, A. Wójs, Analysis of the Quantum Spin Hall and Quantum Anomalous Hall Effects in a Two-Dimensional Decorated Lattice Using Entanglement Spectrum, Acta Phys. Polonica A **129**, A87-89 (2016).
Points awarded by the Ministry of Science and Higher Education: **40 pkt**
Impact Factor: **0.577**

E14 B. Jaworowski, A. Manolescu, **P. Potasz**, Fractional Chern insulator phase at the transition between checkerboard and Lieb lattices, Phys. Rev. B **92**, 245119 (2015).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

E15 **P. Potasz**, J. Fernandez-Rossier, Orbital Magnetization of Quantum Spin Hall Insulator Nanoparticles, Nano Letters **15**, 5799-5803 (2015).
Points awarded by the Ministry of Science and Higher Education: **200 pkt**
Impact Factor: **11.189**

E16* A. D. Güçlü, **P. Potasz**, P. Hawrylak, Sublattice engineering and voltage control of magnetism in triangular single and bi-layer graphene quantum dots, Phys. Status Solidi RRL, **10(1)**, 58-67 (2015).
Points awarded by the Ministry of Science and Higher Education: **100 pkt**
Impact Factor: **2.821**

E17* **P. Potasz**, A. D. Güçlü, I. Ozfidan, P. Hawrylak, Spin-orbit coupling and optical detection of

spin polarisation in triangular graphene quantum dots, Int. J. Nanotechnol., **12**, 3/4 (2015).
Points awarded by the Ministry of Science and Higher Education: **20 pkt**
Impact Factor: **0.367**

E18* A. D. Güçlü, **P. Potasz**, P. Hawrylak, Graphene-based Integrated Electronic, Photonic and Spintronic Circuit in Future Trends in Microelectronics: Frontiers and Innovations (eds S. Luryi, J. Xu and A. Zaslavsky), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781118678107.ch 23 (2013).
Points awarded by the Ministry of Science and Higher Education: -
Impact Factor: -

E19* A. D. Güçlü, **P. Potasz**, P. Hawrylak, Zero-energy states of graphene triangular quantum dots in a magnetic field, Phys. Rev. B **88**, 155429 (2013).
Points awarded by the Ministry of Science and Higher Education: **140 pkt**
Impact Factor: **4.036**

E20* B. Jaworowski, **P. Potasz**, A. Wójs, Disorder induced loss of magnetization in Lieb's graphene quantum dots, Superlattices and Microstructures **64**, 44-51 (2013).
Points awarded by the Ministry of Science and Higher Education: **70 pkt**
Impact Factor: **2.658**

7. Information on presentations given at national or international scientific conferences distinguishing invited talks.

Conference talks after obtaining the PhD degree:

- 25 – 28.05.2022 International Workshop on Quantum Circuits in 2D Materials (QC2DM 2022), Ottawa, *Magnetic properties of moire quantum dot arrays*, **P. Potasz (invited talk)**

- 12 – 18.03.2022 APS March Meeting 2022, Chicago, *Exact Diagonalization for Magic-Angle Twisted Bilayer Graphene*, **P. Potasz (invited talk)**

- 22 – 26.07.2019 Quantum Matter Working Group 2019 in Los Alamos, *Exact Diagonalization Approach to Electronic Correlations in Magic Angle Twisted Bilayer Graphene*, **P. Potasz**

- 26 – 30.06.2017 The European Conference Physics of Magnetism 2017 (PM'17), Poznań, *Wigner Crystallization in Chern Insulators with flat bands*, B. Jaworowski, **P. Potasz**, P. Kaczmarkiewicz, M. Kupczynski, A. D. Güçlü, and A. Wójs

- 18 – 24.06.2016 45th "Jaszowiec" 2015. International School & Conference on the Physics of Semiconductors. Szczyrk, *Stability of Laughlin type and composite fermion states in Chern insulators*, **P. Potasz,** B. Jaworowski, A. Manolescu

- 20 – 25.06.2015 44th "Jaszowiec" 2015. International School & Conference on the

Physics of Semiconductors, Wisła, *Robust orbital nanomagnets*, **P. Potasz**

- 21 – 24.05.2013 Workshop on nanostructured graphene, Antwerp, *Electronic and magnetic properties of triangular graphene quantum dots and rings*, **P. Potasz (invited talk)**

- 29.07 – 3.08.2012 31st International Conference on the Physics of Semiconductors, Zurich, *Theory of tunable strongly correlated electron system in a semiconductor based on graphene quantum dots*, **P. Potasz**, A. D. Güçlü, A. Wójs, P. Hawrylak

Conference talks before obtaining the PhD degree:

- 14 – 16.03.2012 2nd Polish-German Workshop on the Optical Properties of Nanostructures, Münster, *Electronic properties of gated triangular graphene quantum dots: Magnetism, correlations, and geometrical effects*, **P. Potasz**, A. D. Güçlü, A. Wójs, P. Hawrylak

- 14 – 16.02.2011 Polish-German Workshop on the Optical Properties of Nanostructures, Wrocław, *Electronic and magnetic properties of triangular graphene quantum rings*, **P. Potasz**, A. D. Güçlü, O. Voznyy, J. A. Folk, P. Hawrylak

8. Information on participation in organizing and scientific committees at domestic and international conferences, including a role.

- 10.09–15.09.2017 Secretary of 44th General Meeting of Polish Physicists, Wrocław

- 8.02–14.02.2015 A member of scientific committee at Winter Kindergarten of Theoretical Physics: International students' conference, Lądek-Zdrój

9. Information on participation in the works of research teams realizing projects financed through national and international competitions, including the projects which have been completed and projects in progress, and information on the function performed in the team.

Current projects:

- 2022 – *Twistronics - research on new quantum simulators*, National Science Centre of Poland (NCN), Opus grant No 2021/41/B/ST3/03322 – **PI**

Finished projects:

- 2019 – 2020 *Research on correlation effects in twisted bilayer crystals*, The Polish National Agency for Academic Exchange NAWA, Bekker's program No 2018/1/00159 – **PI**

- 2015 – 2020 *Topological effects in advanced low-dimensional materials*, National Science Centre of Poland (NCN), Maestro grant No 2014/14/A/ST3/00654 – **Co-investigator**

- 2014 – 2016 *Studies of the effects of electron-electron interactions and their influence on optical and transport properties of atomically thin nanostructures*, National Science Centre of Poland (NCN), Sonata grant No 2013/11/D/ST3/02703 – **PI**

- 2014 – 2014 *Electronic and transport properties of atomically thin nanostructures*, Mobilność Plus, Ministry of Science and Higher Education of Poland, grant No 1108/MOB/13/2014/0, postdoc – **PI**

- 2013 – 2016 *Investigation of electronic properties and the role of electron-electron interaction in graphene nanostructures with potential application in nanotechnology*, Ministry of Science and Higher Education of Poland, Iuventus Plus grant No IP2012 007372 – **PI**

- 2012 – 2013 *Magneto-optics of correlated spin 3/2 carriers in semiconductor nanostructures (for applications in quantum information processing)*, professor's fellowship FNP "Mistrz" 2012 for prof. A. Wójsa, Foundation for Polish Science (FNP), – **Co-investigator**

- 2012 – 2014 *Studies of topological properties of strongly correlated electron systems regarding their application in quantum information processing*, National Science Centre of Poland (NCN), Opus grant No 2011/01/B/ST3/04/504 – **Co-investigator**

- 2010 – 2012 *Electronic and optical properties of graphene nanostructures*, Ministry of Science and Higher Education of Poland, grant No NN202 488339 – **main Co-investigator**

11. Information on internships completed in scientific institutions, also abroad, including the place, time and duration of the internship and its character.

International:

- 16.07 – 10.08.2017 University of Ottawa (prof. P. Hawrylak), Ottawa, Canada, **scientific consultations**

- 30.01 – 21.02.2016 University of Ottawa (prof. P. Hawrylak), Ottawa, Kanada, **scientific consultations**

- 31.08 – 12.09.2015 Topological phases in Condensed Matter and Cold Atoms systems, Korsyka, Francja, **summer shools**

- 10.08 – 21.08.2015 School and Workshop on Strongly Correlated Electronic Systems — Novel Materials Meet Novel Theories, Triest, Włochy, **summer shools**

- 16.07 – 06.08.2015 University of Ottawa (prof. P. Hawrylak), Ottawa, Canada, **scientific consultations**

- 19.01 – 23.01.2015 University of Alicante (prof. J. Fernandez-Rossier), Alicante, Spain, **scientific consultations**

- 04.08 – 29.08.2014 Topological Aspects of Condensed Matter Physics, Les Houches, France, **summer shools**

- 05.12 – 11.12.2013 Izmir Institute of Technology (dr A. D. Guclu), Izmir, Turkey, **scientific consultations**

- 18.09 – 31.09.2013 Reykjavik University (prof. A. Manolescu), School of Science and Engineering, Reykjavik, Iceland, **scientific consultations**

- 18.11 – 24.11.2012 Reykjavik University (prof. A. Manolescu), School of Science and Engineering, Reykjavik, Iceland, **scientific consultations**

- 05.08 – 12.08.2012 Quantum Monte Carlo and the CASINO program, Vallico Sotto, Tuscany, Italy, **summer shools**

- 2008 – 2011 National Research Council (prof. P. Hawrylak), Ottawa, Canada, four internships 2-4 months within PhD thesis work

Domestic:

- 16-20.02.2015 Warsaw, IF PAN (prof. R. Buczko's group), **scientific consultations**

- 07-11.04.2014 Warsaw, IF PAN (prof. R. Buczko's group), **scientific consultations**

- 24-29.11.2013 Warsaw, IF PAN (prof. R. Buczko's group), **scientific consultations**

13. Information on scientific or artistic works reviewed, in particular those published in international journals.

Reviewed articles of following scientific journals: Physical Review B (9), Physical Review Letter (3), Acta Physica Polonica A (2), Physical Review X (1), Physica E (1), Nanoscale Research Letters (1), Carbon (1), 2D Materials (1)

IV. SCIENTOMETRIC INFORMATION

1. Information on Impact Factor:

The sum of Impact Factor of all the articles: **115.329**

- after obtaining PhD: **73.776** (the works in the series account for **35.435**)
- before obtaining PhD: **41.553**.

2. Information on the number of citations of the applicants publications, including a separate list of self-citations

According to Scopus: 840 (660 excluding self-citations of all the co-authors)
According to Web of Science: 865 (767 excluding self-citations)

3. Information on h-index

According to Scopus: **13**
According to Web of Science: **14**

4. Information on the number of points from Ministry of Science and Higher Education

Total number of points is **3350**, including:

- after obtaining PhD: **2060** (the works in the series account for **890**)
- before obtaining PhD: **1290**