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

Paweł Kankiewicz

Institute of Physics
Jan Kochanowski University
Kielce

Kielce, 2021

I. INFORMATION ON SCIENTIFIC OR ARTISTIC ACHIEVEMENTS SET OUT IN ART. 219 PARA 1. POINT 2 OF THE ACT

The scientific achievement is a cycle of scientific articles related thematically, entitled **"Dynamics of small bodies in retrograde orbits"**.

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

H1 **Kankiewicz, P.**, Włodarczyk, I. 2006
Stability of the Most Hazardous Mars-Crossers.
Acta Astronomica
2006, Volume 56, No. 4, IF(2006)=2.039,

H2 **Kankiewicz, P.**, Włodarczyk, I. 2017
Dynamical lifetimes of asteroids in retrograde orbits.
Monthly Notices of the Royal Astronomical Society
2017, Volume 468, Issue 4, IF(2017)=5.194,

H3 **Kankiewicz, P.**, Włodarczyk, I. 2018
How long will asteroids on retrograde orbits survive?
Planetary and Space Science
2018, Volume 154, IF(2018)=1.815,

H4 **Kankiewicz, P**
Orbit Inversion Scenarios of Minor Bodies in Retrograde Orbit
Planetary and Space Science
2020, Volume 191, id. 105031, IF(2020)=2.03,

H5 **Kankiewicz, P.**, Włodarczyk, I. 2021
Impact of non-gravitational effects on chaotic properties of retrograde orbits
Astronomy and Astrophysics
2021, Volume 646, id. A182, IF(2020)=5.802,

II. INFORMATION ON SCIENTIFIC OR ARTISTIC ACTIVITY

4. List of articles published in scientific journals (including the articles not mentioned in section I.2).

Items not mentioned in point I.2 are marked with an asterisk (*).
Works published before obtaining the doctoral degree:

1. *Dybczyński, P. A. ; **Kankiewicz, P.**, Approaches of stars to the Sun, Evolution and source regions of asteroids and comets, Astronomical Institute of the Slovak Academy of Sciences, 1999., p.345 [0 p.]

2. ***Kankiewicz, P.**, Earth-Moon Separation Problem In The Motion Of Near Earth Asteroids, Earth, Moon, and Planets, v. 91, Issue 1, p. 43-51 (2002). [70 p.]

Works published after obtaining the doctoral degree:

1. [H1] **Kankiewicz, P.**, Włodarczyk, I. 2006, Stability of the Most Hazardous Mars-Crossers. Acta Astronomica, 2006, Volume 56, No. 4, IF(2006)=2.039 [140 p.]

2. *M. Ratajczak, T. Kwiatkowski, A. Schwarzenberg-Czerny, W. Dimitrov, M. Konacki, K.G. Hełminiak, P. Bartczak, M. Fagas, K. Kamiński, **P. Kankiewicz**, W. Borczyk and A. Rożek Monthly Notices of the Royal Astronomical Society (MNRAS), Volume 402, Issue 4, pp. 2424-2428, Absolute properties of the main-sequence eclipsing binary FM Leo, (2010), [140 p.]

3. *A. Rutkowski, A. Olech, R. Poleski, M. Sobolewska, **P. Kankiewicz**, T.Ak and D. Boyd, Acta Astronomica, Volume 60 (2010), No. 4, pp. 337-355, 2009 Superoutburst of Dwarf Nova 1RXS J053234.9+624755, (2010), [140 p.]

4. *M. Ratajczak, T. Kwiatkowski, A. Schwarzenberg-Czerny, W. Dimitrov, M. Konacki, K.G. Hełminiak, P. Bartczak, M. Fagas, K. Kamiński, **P. Kankiewicz**, W. Borczyk and A. Rożek: FM Leo: the Tale of Twins, Binaries - Key to Comprehension of the Universe. Edited by Andrej Prša and Miloslav Zejda. San Francisco: Astronomical Society of the Pacific, p.95, [140 p.]

5. *Kryszczyńska, A.; Colas, F.; Polińska, M.; Hirsch, R.; Ivanova, V.; Apostolovska, G.; Bilkina, B.; Velichko, F. P.; Kwiatkowski, T.; **Kankiewicz, P.**; Vachier, F.; Umlenski, V.; Michałowski, T.; Marciniak, A.; Maury, A.; Kamiński, K.; Fagas, M.; Dimitrov, W.; Borczyk, W.; Sobkowiak, K.; Lecacheux, J.; Behrend, R.; Klotz, A.; Bernasconi, L.; Crippa, R.; Manzini, F.; Poncy, R.; Antonini, P.; Oszkiewicz, D.; Santana-Ros, T. ; Astronomy & Astrophysics, Volume 546 (2012), id.A72 Do Slivan states exist in the Flora family?. I. Photometric survey of the Flora region, [140 p.]

6. *Hanuš, J.; Ďurech, J.; Brož, M.; Marciniak, A.(...) **Kankiewicz, P.**;(..) et al., Astronomy & Astrophysics, Volume 551, id.A67, 16 pp. , 2013: Asteroids' physical models from combined dense and sparse photometry and scaling of the YORP effect by the observed obliquity distribution, [140 p.].

7. *Oszkiewicz, D.; **Kankiewicz, P.**; Włodarczyk, I.; Kryszczyńska, A., Differentiation signatures in the Flora region, Astronomy & Astrophysics Volume 584, id.A18., 2015; [140 p.]

8. *A. Marciniak, F. Pilcher, D. Oszkiewicz, T. Santana-Ros, S. Urakawa, S. Fauvaud, **P. Kankiewicz**, Ł. Tychoniec, M. Fauvaud, R. Hirsch, J. Horbowicz, K. Kamiński, I. Konstanciak, E. Kosturkiewicz, M. Murawiecka, J. Nadolny, K. Nishiyama, S. Okumura, M. Polińska, F. Richard, T. Sakamoto, K. Sobkowiak, G. Stachowski, P. Trela, Against the biases in spins and shapes of asteroids, Planetary and Space Science, 2015 , Volume 118, p. 256-266 [100 p.]

9. *Oszkiewicz, D. A.; Skiff, B. A.; Moskovitz, N.; **Kankiewicz, P.**; Marciniak, A.; Licandro, J.; Galiazzo, M. A.; Zeilinger, W. "Non-Vestoid candidate asteroids in the inner main belt", Astronomy & Astrophysics, Volume 599, id.A107, 2017, [140 p.]

10. ***Kankiewicz, P.**; Rybczyński, M.; Włodarczyk, Z.; Wilk, G. "Muon Bundles as a Sign of Strangelets from the Universe", The Astrophysical Journal, Volume 839, Issue 1, article id. 31, (2017), [140 p.]

11. *Bąkowska, K.; Olech, A.; Pospieszyński, R.; Świerczyński, E.; Martinelli, F.; Rutkowski, A.; Koff, R.; Drozd, K.; Butkiewicz-Bąk, M.; **Kankiewicz, P.** "MN Draconis: a peculiar, active dwarf nova in the period gap", Astronomy & Astrophysics, Volume 603, id.A72, 2017, [140 p.]

12. *M. Devogèle, P. Tanga, P. Bendjoya, J.P. Rivet, J. Surdej, J. Hanus, L. Abe, P. Antonini, R.A. Artola, M. Audejean, R. Behrend, F. Berski, J.G. Bosch, M. Bronikowska, A. Carbognani, F. Char, M.-J. Kim, Y.-J. Choi, C.A. Colazo, J. Coloma, D. Coward, R. Durkee, O. Erece, E. Forne, P. Hickson, R. Hirsch, J. Horbowicz, K. Kamiński, **P. Kankiewicz**, M. Kaplan, T. Kwiatkowski, I. Konstanciak, A. Kruszewki, V. Kudak, F. Manzini, H.-K. Moon, A. Marciniak, M. Murawiecka, J. Nadolny, W. Ogłoza, J.L Ortiz, D. Oszkiewicz, H. Pallares, N. Peixinho, R. Poncy, F. Reyes, J.A. de los Reyes, T. Santana-Ros, K. Sobkowiak, S. Pastor, F. Pilcher, M.C. Quiñones, P. Trela, D. Vernet, "Shape and spin determination of Barbarian asteroids", Astronomy & Astrophysics, vol. 607, A119 (2017), [140 p.]

13. [H2] **Kankiewicz, P.**; Włodarczyk, I. "Dynamical lifetimes of asteroids in retrograde orbits" ,Monthly Notices of the Royal Astronomical Society, Volume 468, Issue 4, 2017, [140 p.]

14. *Marciniak, A.; Bartczak, P.; Müller, T.; Sanabria, J. J.; Alí-Lagoa, V.; Antonini, P.; Behrend, R.; Bernasconi, L.; Bronikowska, M.; Butkiewicz-Bąk, M.; Cikota, A.; Crippa, R.; Ditteon, R.; Dudziński, G.; Duffard, R.; Dziadura, K.; Fauvaud, S.; Geier, S.; Hirsch, R.; Horbowicz, J.; Hren, M.; Jerosimic, L.; Kamiński, K.; **Kankiewicz**, P.; Konstanciak, I.; Korlevic, P.; Kosturkiewicz, E.; Kudak, V.; Manzini, F.; Morales, N.;

Murawiecka, M.; Ogłoza, W.; Oszkiewicz, D.; Pilcher, F.; Polakis, T.; Poncy, R.; Santana-Ros, T.; Siwak, M.; Skiff, B.; Sobkowiak, K.; Stoss, R.; Żejmo, M.; Żukowski, K. "Photometric survey, modelling, and scaling of long-period and low-amplitude asteroids", Astronomy & Astrophysics, Accepted: 11 September 2017, published February 2018 DOI: 10.1051/0004-6361/201731479 [140 p.]

15. [H3] **Kankiewicz, P.**; Włodarczyk, I. „How long will asteroids on retrograde orbits survive?", Planetary and Space Science, Volume 154, 2018, DOI: 10.1016/j.pss.2018.03.001 [100 p.]

16. *Oszkiewicz, D.; Kryszczyńska, A.; **Kankiewicz, P.**; Moskovitz, N. A.; Skiff, B. A.; Leith, T. B.; Ďurech, J.; Włodarczyk, I.; Marciniak, A.; Geier, S.; Fedorets, G.; Troianskyi, V.; Föhring, D., "Physical and dynamical properties of the unusual V-type asteroid (2579) Spartacus", Astronomy & Astrophysics, Volume 623, id.A170, 2019 [140 p.]

17. [H4] **Kankiewicz, P.**, „Orbit inversion scenarios of minor bodies in retrograde orbit", Planetary and Space Science, Volume 191, article id. 105031., 2020. [100 p.]

18. *Oszkiewicz, D.; Troianskyi, V.; Föhring, D.; Galád, A.; Kwiatkowski, T.; Marciniak, A.; Skiff, B. A.; Geier, S.; Borczyk, W.; Moskovitz, N. A.; **Kankiewicz, P.**; Gajdoš, S.; Világi, J.; Polčic, L.; Kluwak, T.; Wilawer, E.; Kashuba, V.; Udovichenko, S.; Keir, L.; Kamiński, K.; Devogele, M.; Gustafsson, A., „Spin rates of V-type asteroids", Astronomy & Astrophysics, Volume 643, id.A117, 26 pp. , 2020. [140 p.]

19. *Pieńkowski, D.; Gałan, C.; Tomov, T.; Gazeas, K.; Wychudzki, P.; Mikołajewski, M.; Kubicki, D.; Staels, B.; Zoła, S.; Pakońska, P.; Dębski, B.; Kundera, T.; Ogłoza, W.; Dróżdż, M.; Baran, A.; Winiarski, M.; Siwak, M.; Dimitrov, D.; Kjurkchieva, D.; Marchev, D. Armiński, A.; Miller, I.; Kołaczkowski, Z.; Moździerski, D.; Zahajkiewicz, E.; Bruś, P.; Pigulski, A.; Smela, T.; Conseil, E.; Boyd, D.; Conidis, G. J.; Plauchu-Frayn, I.; Heras, T. A.; Kardasis, E.; Biskupski, M.; Kneip, R.; Hambálek, L.; Pribulla, T.; Kundra, E.; Garai, Z.; Rodriguez, D.; Kamiński, T.; Dubois, F.; Logie, L.; Capetillo Blanco, A.; **Kankiewicz, P.**; Świerczyński, E.; Martignoni, M.; Sergey, I.; Kare Trandem Qvam, J.; Semkov, E.; Ibryamov, S.; Peneva, S.; Gonzalez Carballo, J. -L.; Ribeiro, J.; Dean, S.; Apostolovska, G.; Donchev, Z.; Corp, L.; McDonald, P.; Rodriguez, M.; Sanchez, A. ; Wiersema, K.; Conseil, E.; Menke, J.; Sergey, I.; Richardson, N. "International observational campaign of the 2014 eclipse of EE Cephei", Astronomy & Astrophysics, Volume 639, id.A23, 9 pp. , 2020 [140 p.]

20. [H5] **Kankiewicz, P.**, Włodarczyk, I. , Impact of non-gravitational effects on chaotic properties of retrograde orbits, Astronomy and Astrophysics, 2021, Volume 646, id. A182 [140 p.]

21. * Marciniak, A.; Durech, J.; Ali-Lagoa, V.; Ogloza, W.; Szakats, R; Mueller, T. G.; Molnar, L; Pal, A; Monteiro F. (...) **Kankiewicz, P.** (..) et al. Properties of slowly rotating asteroids from Convex Inversion Thermophysical Model, Astronomy and Astrophysics, accepted: 20.06.2021 DOI: 10.1051/0004-6361/202140991 [140 p.]

7. Information on presentations given at national or international scientific or arts conferences, including a list of lectures delivered upon invitation and plenary lectures.

Conference presentations before obtaining the doctoral degree:

1. Kankiewicz, P. , "Approaches of Stars to the Sun", Polish Celestial Mechanics Seminar, Piwnice pod Toruniem, 1998, plenary lecture

2. Kankiewicz, P., Dybczyński, P. A. , "Approaches of Stars to the Sun", IAU Colloquium no. 173, Tatrzańska Łomnica, Slovakia, 1998, plenary lecture

3. Kankiewicz, P. „Dynamical classification of NEO objects", Polish Astronomical Society Meeting (Olsztyn, 1999). Poster and lecture selected in competition.

4. Kankiewicz, P. „„Dynamical classification of NEO objects", Polish Celestial Mechanics Seminar, Puszczykowo/Poznań (1999). Plenary lecture.

5. Kankiewicz, P. „„Moon-Earth Separation Problem in the Dynamics of Near Earth Asteroids", US-European Celestial Mechanics Workshop , Poznań, 2000, poster.

6. Kankiewicz, P. , "Orbits of NEA asteroids – Lyapunov exponents", Polish Celestial Mechanics Seminar, Warszawa, 2002, plenary lecture

7. Kankiewicz, P. "Subtle Gravitational Effects in the Motion of NEA" , Asteroids Comets Meteors (ACM), Berlin, 2002, poster

Conference presentations after obtaining the doctoral degree (in multi-author lectures, the speaker is underlined):

1. International Astronomical Union Colloquium No. 197, Kankiewicz, P: "The motion and stability of some large-eccentricity Near-Earth Asteroids", Belgrade, Serbia, 2004, poster

2. Kankiewicz, P., "Observations of small bodies of the Solar System at the Astronomical Observatory of Świętokrzyska Academy", conference „Scientific applications of small telescopes", 2.06.2005, Kielce., plenary lecture

3. Kankiewicz P., Włodarczyk I., „Dynamics of Mars Crossers", XXXII Polish Astronomical Society Meeting ,19-23.09.2005, Wrocław, poster

4. Kankiewicz P., Włodarczyk I., "Asteroids approaching Mars", VII Conference of the Comet Observers Section of PTMA "Structure and evolution of comets and other small bodies of the Solar System". 14 - 16.10.2005, Niepołomice, plenary lecture

5. Kankiewicz P., Włodarczyk I. „The stability of orbits of effective Mars Crossers" Meeting on Asteroids and Comets in Europe, 12-14.05.2006 , Vienna, Austria, plenary lecture

6. Kankiewicz P., Włodarczyk I., „Dynamics of effective Mars Crossers.", Polish Celestial Mechanics Seminar, 17-18.05.2006, Ciążeń, plenary lecture

7. Kankiewicz P., „CCD observations of comets and asteroids at the Astronomical Observatory of the Swietokrzyska Academy", VIII Conference of the Comet Observers Section of PTMA "Structure and evolution of comets and other small bodies of the Solar System" 13 - 15.10.2006, Kraków, plenary lecture

8. Kankiewicz P., „Results of astrometric and photometric observations at the Astronomical Observatory of Świętokrzyska Academy", XXXIII Polish Astronomical Society Meeting, Kielce, 17-21.09.2007, plenary lecture

9. Kankiewicz P., Włodarczyk I., „Scenarios of evolution of asteroids approaching Mars", XXXIII Polish Astronomical Society Meeting, Kielce, 17-21.09.2007, poster

10. Kankiewicz P., Włodarczyk I., „Scenarios of evolution of Mars-crossing asteroids with respect to errors of orbits determination ", Polish Celestial Mechanics Seminar, Ciechocinek, 26-28.09.2007, plenary lecture

11. Kankiewicz P., „Astrometric measurements at the Astronomical Observatory of the Swietokrzyska Academy", Polish Celestial Mechanics Seminar, Ciechocinek, 26-28.09.2007, plenary lecture

12. Kankiewicz P., „Amateur and professional observations of comets", conference: „Selected problems in the popularisation of astronomy", Kielce, 21.11.2008, plenary lecture

13. Kankiewicz P., Włodarczyk I., „Origin of asteroids on retrograde orbits", Polish Celestial Mechanics Seminar, Warszawa-Mądralin, 8-11.12.2008, plenary lecture

14. Kankiewicz P., „Planetarium in Jan Kochanowski University, Kielce", 6th European Meeting of Small and Portable Planetaria, 1-4.09.2009, Chorzów, plenary lecture

15. Kankiewicz P., Włodarczyk I., „Evolution of asteroids in retrograde orbits", XXXIV Polish Astronomical Society Meeting, 14-18.09.2009, Kraków, poster

16. Kankiewicz P., Włodarczyk I. The Orbital Evolution of 2007 VA85, the Amor-type Asteroid on Retrograde Orbit, the conference Asteroid-Comet Hazard. ACH–2009, 21-25.09.2009, St. Petersburg, Russia, plenary lecture

17. Kankiewicz P., Włodarczyk I. Possible Origin of Asteroids on Retrograde Orbits, konferencja Asteroid-Comet Hazard. ACH–2009, 21-25.09.2009, St. Petersburg, Russia, poster

18. Kankiewicz, P. „Recent observational results on the telescope of AO IP JKU in Kielce", conference „Scientific applications of small telescopes II", (Uniwersytet Opolski), 15-17.06.2011, Opole, plenary lecture

19. Kankiewicz P. „Observations held at the Astronomical Observatory of JKU in Kielce", XXXV Polish Astronomical Society Meeting, Uniwersytet Gdański, 11-15.09.2011, Gdańsk, poster

20. Paweł Kankiewicz; Observing programme for small telescope; Scientific applications of small telescopes 2013; Kraków, Koninki; 11.05.2013; plenary lecture

21. Paweł Kankiewicz; Asteroids in retrograde orbits: interesting cases; XXXVI Polish Astronomical Society Meeting; Warszawa; 11.09.2013; poster

22. Paweł Kankiewicz, Ireneusz Włodarczyk; Orbital Evolution and Impact Hazard of Asteroids on Retrograde Orbits; Meteoroids 2013; Poznań; 26.08.2013; poster

23. A. Marciniak, F. Pilcher, T. Santana-Ros, D. Oszkiewicz, and P. Kankiewicz ; Against the bias in physics of asteroids: Photometric survey of long-period and low-amplitude asteroids.; Asteroids, Comets, Meteors 2014; Helsinki; Finlandia; 04.07.2014; poster

24. P. Kankiewicz, I. Włodarczyk, Yarkovsky effect in the motion of asteroids in retrograde orbits, XXXVII Polish Astronomical Society Meeting; Poznań; 7-10.09.2015; poster

25. M. Krużyński, K. Kamiński, P. Kankiewicz, E. Wnuk, Observations of space debris with the RBT robotic spectroscopic telescope, XXXVII Polish Astronomical Society Meeting; Poznań; 7-10.09.2015; poster and lecture

26. Dagmara Oszkiewicz, Paweł Kankiewicz, Ireneusz Włodarczyk, Agnieszka Kryszczyńska, Differentiated asteroid families as a missing link in the Solar System history, XXXVII Polish Astronomical Society Meeting; Poznań; 7-10.09.2015; plenary lecture

27. Anna Marciniak, Frederick Pilcher, Dagmara Oszkiewicz, Przemysław Bartczak, Toni Santana-Ros, Krzysztof Kamiński, Seitaro Urakawa, Waldemar Ogłoza, Stephane Fauvaud, Paweł Kankiewicz, Viktor Kudak, Michał

Żejmo, Kota Nishiyama, Shin-ichiro Okumura, Tokuhiro Nimura, Roman Hirsch, Izabella Konstanciak, Łukasz Tychoniec, Michał Figas, Difficult cases in photometric studies of asteroids , XXXVII Polish Astronomical Society Meeting; Poznań; 7-10.09.2015; plenary lecture

28. Kankiewicz, P. Astrometry of NEOs and artificial satellites, Conference "Polish participation in the European SSA programme" (Space Situational Awareness), Poznań, plenary lecture

29. K. Kamiński, M. Krużyński, E. Wnuk, P. Kankiewicz, III Space Sector Information Day: space technologies in the service of Polish Armed Forces, Warszawa, Optical observations of satellite objects within SST, plenary lecture

30. Kankiewicz, P. History of the conference "Scientific applications of small telescopes" 2005 – 2016, Scientific applications of small telescopes 2016, Kielce, plenary lecture (during the opening ceremony).

31. Kankiewicz, P. Observations of asteroids and artificial satellites on small telescopes, P. Kankiewicz, K. Kamiński, M. Krużyński, T. Kwiatkowski, E. Wnuk, Scientific applications of small telescopes 2016, Kielce, plenary lecture

32. Moskovitz, Nicholas; Oszkiewicz, Dagmara; Skiff, Brian; Kankiewicz, Pawel; Licandro, Javier; Galiazzo, Mattia; Zeilinger, Werner, American Astronomical Society, DPS meeting #48, Pasadena, USA, 327.05 Non-Vestoid candidates in the inner Main Belt, poster

33. P. Kankiewicz, I. Włodarczyk, IX PTMA Section of comet observers conference "30 years of organised comet observations in Poland", Niepołomice, „Comets in retrograde orbits", plenary lecture

34. P. Kankiewicz, I. Włodarczyk: How long will asteroids on retrograde orbits survive? ACM 2017: „Asteroids Comets Meteors 2017", Montevideo, Uruguay, lecture in session

35. P. Kankiewicz, I. Włodarczyk „Non-gravitational Effects in the Dynamics of the Retrograde Near-Earth Comet: 333P/LINEAR , XXXVIII Polish Astronomical Society Meeting, 11-14.09.2017, Zielona Góra., poster

36. Kankiewicz, Paweł; Włodarczyk, Ireneusz, „The Dynamics of Minor Bodies on Retrograde Orbits",The Transneptunian Solar System, Coimbra, Portugal, 26.03.2018– 29.03.2018., plenary lecture

37. Kankiewicz, Paweł, „Retrograde asteroids", Astrodynamic Seminar, Astronomical Observatory, University of Vienna, Austria, 2018-05-27., invited lecture

38. The conference „3rd Collaboration meeting of the MPD and BM@N experiments at the NICA Facility",15-18.04.2019 (Russia, Dubna), Participation in the Collaboration Meeting and the session of the so-called "Institutional Board" as a representative of JKU.

39. Kankiewicz, Paweł; Włodarczyk, Ireneusz, „ Chaotic Properties of Minor Bodies in Retrograde Orbits", XXXIX Polish Astronomical Society Meeting, Olsztyn, 9-12.09.2019, poster

8. Information on participation in organizational and scientific committees at national or international conferences, including the applicant's function.

As a member of the local organising committees, I participated in the organisation of the conferences listed below.

Before obtaining the doctoral degree:

1. US-European Celestial Mechanics Workshop, Poznań, 2000 (international conference)

After obtaining the doctoral degree:

1. "Scientific applications of small telescopes", Kielce, 2005 (national conference)
2. XXXIII Polish Astronomical Society Meeting, Kielce, 2007 (national conference)
3. Cosmology School Kielce (2015) (international conference)
4. "Scientific applications of small telescopes", Kielce, 2016 (national conference)

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.

Before obtaining the doctoral degree:

1. 2000 – 2001. Project leader and contractor in a grant for young researchers funded by the State Committee for Scientific Research entitled "Analysis of the long-term orbital evolution of newly discovered Earth-approaching asteroids on the basis of the latest numerical methods".
2. 2002 – 2003. Contractor of a PhD research grant funded by the State Committee for Scientific Research, entitled "The influence of subtle gravitational effects on the evolution of orbits of near-Earth asteroids".

After obtaining the doctoral degree:

Completed:

1. 10.08.2016 - 31.08.2017. Contractor in the grant project of the European Space Agency (ESA) in cooperation with the Astronomical Observatory Institute of Adam Mickiewicz University: ESA Space Surveillance & Tracking, NEA and Space Weather.

2. 09.09.2017 - 04.09.2019. Contractor in the grant project of the European Space Agency (ESA) in cooperation with the Institute of Astronomical Observatory of the Adam Mickiewicz University: Service for Archival NEO Orbital and Rotational Data Analysis (SANORDA)

3. 09.04.2018 - 08.04.2021. Contractor in the project titled: "Inner Main Belt V-type asteroids as tracers of differentiated planetesimals" (P.I. Dr D. Oszkiewicz, IAO AMU), funded by the SONATA13 grant at NCN. NCN project number: 2017/26/D/ST9/00240.

10. Membership in international or national organizations and scientific societies, including the functions performed by the applicant.

1. 2007 – present. Member of the Polish Astronomical Society (PTA).

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

Before obtaining the doctoral degree:

1. Participation in lectures and practical classes as well as the exchange of ideas at the Winter School „Singularities on Gravitational Systems", Arc 2000, France, 12-18.03.2000. Organizer: Centre National de la Recherche Scientifique (CNRS) and Observatoire de la Cote d'Azur, France.

2. Participation in lectures and practical classes as well as the exchange of ideas at the Summer School „Chaos and Frequency Analysis", Porquerolles, France, 9-15.09.2001. Organizer: CNRS and Observatoire de la Cote d'Azur, France.

3. One-week visit as a part of cooperation and exchange of scientific experiences at the Observatory of the University of Vienna, Vienna, Austria, 12.2001.

4. Participation in lectures and practical classes as well as the exchange of ideas at the Winter School „Chaos and Diffusion in Dynamical Systems", Pralognan, France, 10-16.03.2002. Organizer: CNRS and Observatoire de la Cote d'Azur, France.

After obtaining the doctoral degree:

1. Participation in the activities of the Polish team NICA-PL (Nuclotron based Ion Collider facility) at the United Institute for Nuclear Research, Dubna, in the MPD (Multi Purpose Detector) experiment group. Dubna, Russia, 10.2019, two-week visit at the High Energy Institute within the MPD collaboration.

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

1. 2013, Editorial review of an article in the field of experimental physics, Central Research and Development Centre for Research and Teaching Equipment
2. 2017, 2018, two reviews of an article in Nature Astronomy
3. 2018, one review in the Journal of Physics and Astronomy
4. 2018, one review in the Journal Advances in Astronomy
5. 2019, one review in the Journal Planetary and Space Science

14. Information on participation in European or other international programmes.

1. Team member of the PROGRES - Development Programme: Economy - Education - Success. Source of funding: Operational Programme Human Capital POKL co-financed by the European Union under the European Social Fund.
2. Team member of the FENIKS three-year educational programme. Project implemented in 2009-2012 within the framework of the European Social Fund by a consortium of universities: Jagiellonian, Rzeszowski and Jan Kochanowski Universities.

16. Information on membership in the teams assessing applications for financing of research projects, applications for scientific awards, applications in other competitions of scientific or didactic character.

1. 2014-2016: Member of the interdisciplinary team of the Ministry of Science and Higher Education for the evaluation of applications for stipends for outstanding young scientists.
2. 2017-2018: Member of the interdisciplinary team of the Ministry of Science and Higher Education for the evaluation of applications for stipends for outstanding young scientists.

IV. SCIENTOMETRIC INFORMATION

1. Information on the Impact Factor (in the fields and disciplines in which this parameter is commonly used as a scientometric index

My total Impact Factor is 96.054. Concerning publications representing a habilitation achievement, the IF is 16.88.

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

Publications in which I am a co-author have 182 citations, including 33 self-citations (according to Astrophysics Data System – ADS). According to Web of Science database, there are 143 citations and 25 self-citations.

3. Information on h-index held.

My h-index according to Astrophysics Data System (ADS) and Web Of Science is 7.

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

My publications after obtaining the PhD degree include 2820 MNiSW points.

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(Applicant's signature)