

Curriculum Vitae

dr hab. Agnieszka Janiuk
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Personal information:

1. Date and place of birth: 01. Sep., 1974, Warszawa
2. Status: married, two children (d.o.b. 2001 and 2006)

Current and past employment:

- from 2011: Associate professor, Center for Theoretical Physics PAS, Warsaw
- 2011-2015: Deputy Head for Science and General Issues, Center for Theoretical Physics, PAS, Warsaw
- 2010-2011: Research associate (tenure track); Center for Theoretical Physics, PAS
- 2007 - 2010 Research associate (tenure track); N. Copernicus Astronomical Center, Warsaw
- 2006 - 2007: Post-Doc; Faculty of Physics and Astronomy, University of Nevada, Las Vegas, USA
- 2003 – 2006: Post-Doc; N. Copernicus Astronomical Center, Warsaw
- 2003: Post-Doc; European Research and Training Network, Max-Planck Institut fuer Astrophysik, Garching, Germany

Education and academic degrees:

- 2020: Nominated by the Scientific Council of the N. Copernicus Astronomical Center for the Full Professor title in Natural Sciences
- 2011: Habilitation degree, N. Copernicus Astronomical Center, PAS, Warsaw. Thesis title: „Structure and variability of the Central Engine Driving Gamma Ray Burst”, defended on 29.04.2011
- 2003: PhD degree in astronomy; NCAC, PAS, Warsaw. Thesis title: „Disk accretion onto black hole”, thesis Advisor: prof. B. Czerny. Defended on 21.02.2003
- 2003: Post-Doctoral fellowship, funded by European Research and Training Network, Max-Planck Institut fuer Astrophysik, Garching, Germany (Host: prof. Rashid Sunyaev)
- 1998 – 2003: Doctoral studies: N. Copernicus Astronomical Center, PAS, Warsaw
 - 2000: Pre-doctoral fellowship: Harvard Smithsonian Center for Astrophysics, USA (Host: dr Aneta Siemiginowska)

- 1999: Summer internship: International School for Advanced Studies, Trieste, Italy (Host: prof. Marek Abramowicz)
- 1993 – 1998: Master Studies (integrated), University of Warsaw, Physics Department, Chair of Astronomy
- 1989 – 1993: XI Nicolaus Rey High School, Warsaw

Awards:

- 2013 and 2015 (twice): Team Award of the Provost of Nicolaus Copernicus University in Toruń, together with dr. Magdalena Kunert-Bajraszewska, for the research achievements
- 2003: Honors in Grzegorz Białkowski competition for the best PhD thesis in physics and astronomy; Foundation for Polish Science
- 2003: Honors for the PhD thesis, awarded by the N. Copernicus Astronomical Center Science Board

Research grants:

- 2020-2024: “Origin of gamma ray bursts and their multimessenger appearance”, Polish National Science Center (NCN) grant Opus, No. DEC-2019/35/B/ST9/04000 (**Principal Investigator**)
- 2017-2021: “Hyperaccretion of matter onto a black hole”, Polish National Science Center (NCN) grant Opus, No. DEC-2016/23/B/ST9/03114 (**Principal Investigator**)
- 2013-2018: “Astrophysics of processes in compact cosmic sources”, Polish NCN grant Sonata-Bis, No. DEC-2012/05/E/ST9 (**Principal Investigator**)
- 2010 – 2013: Polish Ministry of Science grant No. N N203 512638 „Processes of accretion and emission in gamma ray bursts” (**Principal Investigator**)
- 2007 – 2009: Polish Ministry of Science grant No. N N203 380136 „Evolution of Active Galactic Nuclei”, led by prof. B. Czerny (Co-I)
- 2009- 2010: Polish Ministry of Science grant No. N N203 303635 “First Systematic studies of compact BAL quasars” led by Dr M. Kunert-Bajraszewska (Co-I)
- 2007 – 2009: grant Polish Astroparticle Network, led by prof. G. Wrochna (Co-I)
- 2006 - 2007: grant NASA No. NNG05GB88G “MHD flows in the collapsar model of GRBs” led by prof. D. Proga (Co-I)
- 2005 - 2007: Polish KBN grant No. 1P03D00829 “Winds and Outflows from Accreting Black Holes” led by prof. B. Czerny (Co-I)
- 2002 - 2005: Polish KBN grant No. PBZ/057/P03/2001 “Cosmic sources of particles and high energy radiation” led by doc. dr hab. J. Ziolkowski (Co-I)
- 2002 - 2004: Polish KBN grant No. 2P03D00322 “Two-phase accretion onto a black hole in active galactic nuclei” led by prof. B. Czerny (Co-I)
- 2003: Polish KBN grant No. 2P03D00124 “Time Evolution of Accretion Disk with Mass Exchange Between Disk and Corona in Black Hole X-ray Binaries” (**Principal Investigator**)
- 2000 - 2002: Polish KBN grant No. 2P03D01519 “Spectral Analysis of Narrow Line Seyfert 1 Galaxies” (**Principal Investigator**)
- 1999 - 2001: Polish KBN grant No. 2P03D01816 “Broadband studies of spectra and time variability of active galactic nuclei” led by prof. B. Czerny (Co-I)

- 1998: Polish KBN grant No. 2P03D00410 “Are the mechanisms of activity in Seyfert 1 and Seyfert 2 galaxies the same?” led by prof. B. Czerny (Co-I)

Activity in scientific community:

- from 2019: member of the Polish Society on Relativity. In Oct 2020, elected to the Board of Directors of this Society, serving as the Treasurer
- from 2019: member of the Commission B1 of the International Astronomical Union , „Computational Astrophysics”
- from 2019: Vice-Chair of the Science Council, Center for Theoretical Physics PAS
- from 2019: member of the Science Council, Copernicus Astronomical Center PAS
- 2017: Co-organized Symposium „Properties and evolution of accreting compact objects in low and high mass X-ray binaries”, European Week of Astronomy and Space Science (EWASS), June 26-30.2018, Prague, Czech Republic
- from 2016: member of the Astronomy Commission, Polish Academy of Sciences
- from 2015: member of the European Astronomical Society
- 2015: Co-organized conference of National Board for Astroparticle Physics, 11-13.05.2015, Warsaw. Main Organisers: KRAC, University of Warsaw
- 2015: Co-organized international Conference "1st Roman Juskiewicz Sympozjum", 24-28.08.2014, Warsaw. Main Organizers: NCAC PAS, CTP PAS, ICM UW, Polish Astronomical Society, UJ, ScienceNow.
- 2010-2014: Coordinated the Polish participation in the European Action COST MP0905 „Black Holes in a Violent Universe” (Member of the Management Committee)
- from 2006: member of the International Astronomical Union
- 2005-2006: Co-organized weekly seminar at NCAC, „Journal Club”
- Regularly: peer-reviewer for main astronomical Journals (ApJ, MNRAS, A&A, New Astronomy);
- Regularly: reviewer of grant proposals and final grant reports for Polish Ministry of Science and National Science Center; Member (many times) and Head (twice) of reviewer panels at NCN
- External Reviewer in four Doctoral Theses (Mr V. Parthasaraty and Mr A. Askar, NCAC PAS Warsaw; Ms N. Zywuca, Jagiellonian University, Krakow; Mr J. Hamersky, Charles University, Prague)
- Participated in over 30 international conferences and workshops, presented posters, contributed and invited talks, member of SOC;
- Presented over 30 seminars in Poland and abroad (CAMK, OAUW, IFT UW, OA UJ, IF UJ, UwB, CFT, Olsztyn Observatory, Harvard CfA, NASA GSFC, University of Nevada, Garching MPA, Chinese Academy of Sciences, Charles University Prague, Astronomical Institute Czech Academy of Sciences,)
- Co-authored over 70 articles in peer-refereed journals
- Co-authored over 50 contributions in conference proceedings

Selected Most Recent Publications:

1. A. Murguia-Berthier, A. Batta, **A. Janiuk**, E. Ramirez-Ruiz, I. Mandel, R. Wallace-Everson, „On the maximum stellar rotation to form a black hole without an accompanying luminous transient”, 2020, *ApJL*, 901, 24
2. **A. Janiuk**, „The r-process nucleosynthesis in the outflows from short GRB accretion disks”, 2019, *ApJ*, 882, 163
3. K. Sapountzis, **A. Janiuk**, „The MRI Imprint on the Short-GRB Jets”, 2019, *ApJ*, 873, 12
4. I. Palit, **A. Janiuk**, P. Sukova, “Effects of adiabatic index on the sonic surface and time variability of low angular momentum accretion flows”, 2019, *MNRAS*, 487, 755
5. **A. Janiuk**, P. Sukova, I. Palit, „Accretion in a Dynamical Spacetime and the Spinning Up of the Black Hole in the Gamma-Ray Burst Central Engine”, 2018, *ApJ*, 868, 68
6. **A. Janiuk**, „Microphysics in the Gamma-Ray Burst Central Engine”, 2017, *ApJ*, 837, 39
7. **A. Janiuk**, M. Bejger, S. Charzyński, P. Sukova, „On the possible gamma-ray burst-gravitational wave association in GW150914”, 2017, *New Astronomy*, 2017, 51, 7
8. M. Grzędzielski, **A. Janiuk**, B. Czerny, „Local Stability and Global Instability in Iron-opaque Disks”, 2017, *ApJ*, 845, 20
9. P. Sukova, S. Charzyński, **A. Janiuk**, „Shocks in the relativistic transonic accretion with low angular momentum”, 2017, *MNRAS*, 472, 4327
10. **A. Janiuk**, M. Grzędzielski, F. Capitanio, S. Bianchi, “Interplay between heartbeat oscillations and wind outflow in microquasar IGR J17091-3624”, 2015, *Astronomy & Astrophysics*, 574, 92
11. **A. Janiuk**, “Nucleosynthesis of elements in gamma-ray burst engines”, 2014, *Astronomy & Astrophysics*, 568, 105
12. **A. Janiuk**, S. Charzyński, M. Bejger, “Long gamma ray bursts from binary black holes”, 2013, *Astronomy & Astrophysics*, 560, 25
13. **A. Janiuk**, P. Mioduszewski, M. Mościbrodzka, “Accretion and Outflow from a Magnetized, Neutrino Cooled Torus around the Gamma-Ray Burst Central Engine”, 2013, *ApJ*, 776, 105

Selected Invited Talks and Seminars:

1. “Modeling of black hole accretion flows with GR MHD”. Invited talk on „Challenges and Innovations in Computational Astrophysics”, workshop by Commission B1 of the International Astronomical Union, Skt. Petersburg, 15-21.09.2019
2. ”GLADIS. Global accretion disk instability simulation code”. Invited talk on „XVIIIth Frascati Workshop on *Multifrequency Behaviour of High Energy Cosmic Sources.*” Palermo, Italy, 2-8.06.2019
3. ”Theory of Gamma Ray Bursts”. Invited talk on the National Conference on Astroparticle Physics in Poland, Warsaw, 20-21.05.2019
4. ”Simulations of short GRBs and their jet launching”, invited seminar, Astronomical Observatory, Jagiellonian University, Kraków, Poland, 04.05.2019
5. ”Hyperaccretion and nucleosynthesis in GRB engines”, invited seminar, National Center for Nuclear Research, Warsaw, Poland, 19.03.2019
6. ”Black hole accretion and jet ejection in gamma ray bursts”, Relativity Seminar, Astronomical Institute, Prague, Czech Republic, 01.02.2019
7. ”Astrophysical sources of gravitational radiation”, invited talk, conference on „The multi-messenger astronomy: gamma-ray bursts, search for electromagnetic

- counterparts to neutrino events and gravitational waves”, Niznyj Arkhyz, Russia, 7-14.10.2018
8. “Numerical simulations of black hole accretion in gamma ray burst central engines”. Invited seminar, Los Alamos National Laboratory, New Mexico, USA, 23.08.2018
 9. ”Astrophysical sources of gravitational radiation”, invited talk, international conference, 2nd Workshop on “Singularities of general relativity and their quantum fate”, Banach Center, Warsaw, Poland, 25.05.2018
 10. “Black Hole hyperaccretion in GRB engines”, invited seminar, Psi2 workshop on “Gamma Ray Bursts and Supernovae” Paris-Orsay, France, 13.07.2018
 11. ”Accretion flows in the GRB central engine”, invited talk, international conference “Deciphering the violent Universe”, Playa del Carmen, Mexico, 11-15.12.2017
 12. “Accretion flows in the collapsing massive stars” invited seminar, Astronomical Institute, Prague, Czech Republic, 29.11.2017
 13. ”Accretion in gamma ray bursts central engine”, invited talk, the *Kavli Summer Program for Astrophysics*, Copenhagen, Denmark, 15.08.2017
 14. “Microphysics in the GRB central engine”, invited talk, the 17th Frascati Workshop on the “Multifrequency Behaviour of High Energy Cosmic Sources”, Palermo, Italy, 16.06.2017
 15. “Chaos in Microquasars”, invited seminar, Warsaw University Astronomical Observatory, 08.03.2016
 16. “Activity of supermassive black holes”, invited talk, international conference The 1st Roman Juszkiewicz Symposium, Warsaw, 15.08.2015
 17. “Is Cygnus X-3 going to be a prototype of an unusual gamma ray burst?”, invited seminar, National Center for Nuclear Research, Warsaw, 03.06.2014

Research Interests:

- Gamma Ray Bursts; theoretical models, central engine, jets, accretion onto black hole in GRB engine; collapsar model; nucleosynthesis
- Observed spectral energy distributions, time profiles and variability of GRBs; ultra-short GRBs
- Hydrodynamics and magnetohydrodynamics of accretion flows; disk accretion; spherical accretion in various types of cosmic sources, propagation of shocks in accretion flows; relativistic jets, Poynting flux
- Structure and stability of thin and slim accretion disks
- Radiosources, their structure and evolution; quasars, active galaxies;
- X-ray timing and spectroscopy, black hole X-ray binaries

Teaching:

- From October 2019: Supervision of PhD student Mr Bestin James, CTP PAS
- July-September 2019: supervision of Master student, Ms Dominika Król, CT PAS & Jagiellonian University
- November 2018: PhD thesis opening of Ms Ishika Palit, CTP PAS
- Spring semester of 2017/2018: lecture „Compact Stars”, 30 hrs, Faculty of Physics, Warsaw University of Technology
- 10.2017-09.2018: Supervision of PhD student, Mr Jeremy Mortier, CTP PAS
- from 10.2017: Supervision of PhD student, Ms Ishika Palit, CTP PAS

- 2013-2018: Supervised PhD student Mr Mikołaj Grzędzielski, CTP PAS; PhD Thesis title "Models of accretion disks thermal oscillations in applications to systems with black hole", defended on 12.03.2018
- Summer 2017: Co-Supervised PhD student project at Niels Bohr Institute in Copenhagen, within Kavli Summer Program for Astrophysics; Student Ms Ariadna Murguia-Berthier, from University of California Santa Cruz (USA), project title "Low angular momentum accretion leading to BH assembly in LIGO progenitors"
- 2013-2015 Supervised post-doc, dr Petra Sukova (CTP PAS, full-time)
- 2015-2018 Supervised post-doc, dr Kostas Sapountzis (CTP PAS, full-time)
- 2011-2017 Supervised post-doc, dr Szymon Charzyński (part-time)
- Fall Semester of 2013/2014: lecture „Compact Stars”, 30 hrs, given at CTP PAS
- 2011-2018: Supervised under-graduate students and interns at CTP PAS (M. Wrona, K. Wojczuk, M. Ossowski, P. Michalak, A. Socha, W. Kowalski, M. Łepek, P. Mioduszewski, M. Wieczorek, B. Gajdzis)
- 2008/2009: Master Thesis advisor for Ms Anna Prokopiuk, Thesis title „Timing structure of gamma ray bursts” (defended on 29.06.2009, Faculty of Physics, University of Białystok)
- 2005-2008: Supervised summer interns at N. Copernicus Astronomical Center (B. Nikiel-Wroczyński, M. Sznajder, A. Prokopiuk, G. Czerwiński)

Service as referee and Committee member for PhD and Habilitation theses:

- 2019: Referee of the Habilitation by Dr Alex Markowitz, Nicolaus Copernicus Astronomical Center, Warsaw
- 2019: Committee Member for Doctoral degree of Ms Ariadna Murguia-Berthier, University of California, Santa Cruz. Supervisor: prof. Enrico Ramirez-Ruiz
- 2019: Referee of the Habilitation by Dr Anna Barnacka, Department of Physics astronomy and Informatics, Jagiellonian University, Kraków, Poland
- 2018: Referee of the Doctoral Dissertation by Mr Abbas Askar, defended at NCAC PAS under supervision of prof. Mirosław Giersza. Defence on May 22, 2018.
- 2018: Referee of the Doctoral Dissertation by Ms Natalia Żywucka-Hejzner, defended at Astronomical Observatory of the Jagiellonian University, under supervision of prof. Michał Ostrowski. Defence on December 6, 2018.
- 2017: Committee Member for Doctoral Degree of Ms Małgorzata Siudek, CTP PAS, Warsaw. Supervisor: prof. Lech Mankiewicz
- 2017: Referee for the Doctoral Dissertation by Mr Varadarajan Parthasarathy, defended at NCAC PAS under supervision of prof. Włodzimierz Kluźniak. Defence on September 30, 2017.
- 2015: Referee for the Doctoral Dissertation by Mr Jaroslav Hamersky, defended at the Charles University, Physics Department, in Prague, under the supervision of prof. Vladimir Karas. Defence on September 20, 2015.

Activity in Popularisation of Science:

- from 2015: Running the fanpage of the CFT Astrophysics group on Facebook
- from 2013: Designed and updateing the website CFT Astrophysics Group
- 2015: Took part in TV movie "Astronarium", episode 14, about gamma ray bursts
- 2014-2017: Prepared and run (four times) astronomy workshops for children during Science Festival at CTP PAS

- 2013: Head of the Committee for the astronomical competition „Helios” for high-school children
- 2009: Organized and participated in a number of events during International Year of Astronomy:
 - national competition for children „Discover your Universe” (arts and multimedia presentations)
 - national competition in solving numerical tasks in astronomy published monthly in „Delta” journal
 - conference „Astronomy in media, education and culture”, NCAC, Warsaw, 10-11.12.2009
- from 2005: Member of the Science Advisory Board for „Delta” popular science journal
- Gave a number of popular lectures for general public in NCAC Warsaw, Olsztyn Planetarium, during Science Festival at CTP PAS
- Authored over 30 popular science articles in „Delta” and „Uranii – Postępy Astronomii” journals (in Polish)
- Gave several interviews in TV and radio about astronomy

Personal interests:

- Literature, history, philosophy
- Modern art and theatre
- Music and dance