

I am Wojtek Hellwing, an experienced researcher with a huge fascination for exploring and solving scientific problems. My expertise covers computational cosmology, galaxy formation, and the large-scale structure of the Universe. I am also a dedicated teacher. I particularly enjoy engaging with young researchers and inspiring them to pursue the scientific career. My current research activities focus on using cosmic velocity and density fields for testing General Relativity and alternative theories, and on structure formation on galaxy and sub-galaxy scales for studying the physical nature of dark matter. Finally, I really enjoy public outreach activities, where I can tell other people about my passion.

PERSONAL INFORMATION

Family name, First name: Wojciech A. Hellwing
 ORCID ID: 0000-0003-4634-4442
 Date of birth: 17 August, 1980
 Nationality: Polish
 URL for web site: <https://hellwing.github.io/>

EDUCATION

2005 - 2010: PhD studies in astrophysics, [Nicolaus Copernicus Astronomical Center](#), Poland:
 PhD diploma *cum laude* in physics. Supervisor: Prof. Roman Juszkiewicz
 PhD thesis title: “Cosmology of the scalar-interacting dark matter”
 2000 - 2005: graduate studies in physics, [University of Zielona Góra, Zielona Góra](#), Poland:
 MPhys diploma in physics with *honours*. Supervisor: Prof. Roman Juszkiewicz
 Thesis title: “Is the cosmic soup too sour? Dissertation on the search of new physics explaining the accelerated expansion of the Universe”

CURRENT POSITION

since 2019 associate professor the Center for Theoretical Physics of Polish Academy of Sciences, Warsaw, Poland

PREVIOUS ACADEMIC POSITIONS

2017 – 2019 Marie Skłodowska-Curie Research Fellow at the Center for Theoretical Physics of Polish Academy of Sciences, Warsaw, Poland
 2015 – 2017 Research Fellow, [Institute of Cosmology & Gravitation](#), University of Portsmouth, UK
 2011 – 2015: research associate, University of Durham, [Institute for Computational Cosmology](#), UK.

FELLOWSHIPS & RESERACH GRANTS

2021 Awarded a 4-year research grant in OPUS programme for opening a new research research direction (~350k EUR) (the Polish National Science Center)
 2019 Awarded a 3-year research grant in BEETHOVEN 3 CLASSIC programme for join Polish-German research project (325k EUR)
 2019 Awarded 5-year research grant in SONATA BIS programme for establishing a new research group (~700k EUR) (the Polish National Science Center)
 2017 Awarded Marie Skłodowska-Curie Individual Fellowship
 2017 “Dance od galaxies” -a “SONATA BIS”-type research grant of the Polish National Science Center, ~400k EUR, 60 months (**DECLINED**).
 2011-2013 “Cosmic Web as a laboratory for Dark Energy and Dark Matter” - a “SONATA”-type research grant of the Polish National Science Center, ~75k EUR, 36 months.
 2010 European Science Foundation personal Exchange Grant no 2979, awarded competitively among all applicants to ESF. Used to visit University of Gronigen, the Netherlands.
 2009 [Mazovia Voivodship fellowship](#) for Ph.D. students, awarded competitively among whole sciences and students in the Mazovia region (avg. application success rate was ~11%).
 2001 – 2005 fellowship for distinguished study results, University of Zielona Góra, Poland

COMPUTATIONAL GRANTS

2020 – “Dark Energy Deep Universe & Gravity (DUDEG)”, 2M CPUh, ICM,

- University of Warsaw Supercomputer Center, P.I.
- 2016 – “Millennium-size simulations of Modified Gravity - mature phase”, ([GA65-30](#)), 6M CPUh, ICM, University of Warsaw Supercomputer Center, P.I.
- 2016 – “Beyond EAGLE: Simulating galaxy formation”, ([GES-04](#)), 5M CPUh, ICM, University of Warsaw Supercomputer Center, P.I.
- 2015 – “Galaxy formation in warm dark matter cosmologies”, ([G63-3](#)), 500k CPUh, ICM, University of Warsaw Supercomputer Center, P.I.
- 2014 – 2015 “Copernicus Complexio: a zoom-in simulation of Warm Dark Matter”, (DiRAC, dp004-coco), 1.5M CPUh, University of Durham, P.I.
- 2012 – 2015 “Copernicus Complexio: grand challenge ultra-resolution cosmological simulation”, ([G48-15](#)), 2.7M CPUh, ICM, University of Warsaw, P.I.
- 2011 – 2013 “HPC Infrastructure for Grand Challenges of Science and Engineering (POWIEW)”, ([G44-19](#)), 150k CPUh, ICM, University of Warsaw, Co-I.
- 2008 – 2011 “Cosmological N-body simulation of cosmologies with modified gravity”, ([G34-3](#)), 300k CPUh, ICM, University of Warsaw, P.I.

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

- Sept. 2019 - supervising a PhD students and Post-docs in my own research group (currently 4 PhD students and 3 post-docs)
- Nov. 2011–Dec. 2014 Co-supervising PhD student Maciej Cytowski at University of Warsaw
- Nov. 2011–Dec. 2014 Co-supervising PhD student Bartosz Borucki at University of Warsaw
- Jan. 2011–May 2015 Tutoring PhD student Alexandre Barreira at Durham University
- Nov. 2011–Oct. 2015 Tutoring and co-supervising PhD student S. Bose at Durham University

TEACHING ACTIVITIES

- 2022 lecture course “Introduction to modern cosmology” jointly organized for 3 international PhD schools in Warsaw
- 2020 lecture course “Introduction to modern cosmology” for Warsaw4PhD international PhD school in Warsaw
- 2017 lecture course and workshop laboratories: “Cosmological simulations on supercomputers”, 3rd Cosmological Summer School, Cracow, Poland
- 2017 PhD lecture course “Introduction to cosmological numerical simulations”
- 2016 lecture course, “Introduction to numerical cosmology”, [2nd Cosmological Summer School](#), Kielce, Poland
- 2016 PhD course lecture “[Numerical method: N-body simulation](#)”, University of Portsmouth, UK
- 2015 lecture course, “[Introduction to numerical cosmology](#)”, 1st Cosmological Summer School, Kielce, Poland
- 2014 laboratory, level 1 undergraduate physics laboratory, Durham University, UK
- 2011 – 2013 tutorial, level 3 Key Skills in Physics, Durham University, UK
- 2011 MSc lecture course, “Introduction to Cosmology”, University of Zielona Góra, Poland

ORGANISATION OF SCIENTIFIC MEETINGS

- 09.2021 “40+1 Anniversary of CTP PAS”, Warsaw, Poland, LOC
- 09.2019 “National Meeting of Polish Astronomical Society”, Olsztyn, Poland, LOC
- 09.2017 “National Meeting of Polish Astronomical Society”, Zielona Góra, Poland, SOC
- 09.2015 “[1st Roman Juszkiewicz Symposium](#)”, Warsaw, Poland, Chair of SOC & LOC
- 07.2013 “Ripples in the Cosmos”, Durham, UK, member of LOC
- 01.2012 “VIIIth Durham-Edinburgh eXtragalactic Workshop”, Durham, UK, member of LOC
- 07.2011 “The cosmic web morphology and topology”, Warsaw, Poland, Chair of SOC & LOC

INSTITUTIONAL RESPONSIBILITIES

- 2019 – member of the Science Advisory Board for CTP PAS (Warsaw)
- 2016 – 2017 Post-Doc representative at the ICG faculty meetings, University of Portsmouth
- 2014 – 2015 Post-Doc representative at the ICC faculty meetings, University of Durham

COMMISSIONS OF TRUST

- 2016 – Numerical Grant Advisory Board, ICM, University of Warsaw
 2012 – Referee for *Monthly Notices of Royal Astronomical Society (MNRAS)*, *Journal of Cosmology and Astroparticle Physics (JCAP)*, *Astronomy & Astrophysics (A&A)*, *Physical Review D (PRD)*, *Physical Review Letters (PRL)*, *Journal of Cosmology & Astroparticle Physics*

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2015 – Member, the Polish Astronomical Society (PTA)

MAJOR COLLABORATIONS

- 2011 – VIRGO, An international consortium for cosmological supercomputer simulations, associated post-doc, leading flagship projects: Copernicus Complexio, EAGLE PLUS, MG-Millennium, participating in EAGLE, WARM-APOSTOLE, PLANCK-Millennium
 2015 – DESI, An international consortium for “Dark Energy Spectroscopic Instrument”, a deep massive spectroscopic galaxy survey, post-doc, participating in SimRD and MG-sim task groups

CAREER BREAKS

- 09 – 12.2007 4 months, high-school teaching substitution for wife on maternity leave
 01 – 06.2008 6 months, parental leave to take care of the new-born daughter
 11.2010 – 07.2011 9 months, teaching (MSc lecture course) and part-time jobs to support family

MAJOR COLLABORATORS:

Carlos Frenk (Durham, UK); Richard Bower (Durham, UK); Baojiu Li (Durham, UK); Adi Nusser (Haifa, Israel); Kazuya Koyama (Portsmouth, UK); Brent Tully (Hawaii, U.S.)

INVITED PRESENTATIONS AND LECTURES

~20 invited colloquia, selected ones include: Nicolaus Copernicus Astronomical Centre (2015,2016), Poland; AIP Potsdam (2015), Germany; Technion (2014,2016), Israel; Kapteyn Institute (2010,2013), the Netherlands; Durham University (2011,2017), UK; Toruń Copernicus University (2016), Poland; Warsaw University (2012,2016,2017), Poland.

~12 Invited talks and lectures (I have given about ~80 talks worldwide so far in total), selection:

- 10.2010 - “KIAS Cosmological Workshop”, Seoul, Korea.
 06.2011 - “Cosmic web morphology and topology, Warsaw, Poland.
 04.2011 - “1st Quantum Universe”, Groningen, the Netherlands.
 07.2012 - “13th Marcel Grossmann Symposium”, Stockholm, Sweden.
 02.2014 - “Tracing the Cosmic Web”, Leiden, the Netherlands.
 06.2014 - “IAU 308 Symposium – The Zeldovich Universe”, Tallinn, Estonia.
 07.2015 - “1st Cosmological Summer School”, Kielce, Poland.
 08.2015 - “1st Roman Juskiewicz Symposium”, Warsaw, Poland.
 12.2015 - “Computational Cosmology”, Leiden, the Netherlands.
 07.2016 - “2nd Cosmological Summer School”, Kielce, Poland.
 07.2017 - “3rd Cosmological Summer School”, Kraków, Poland.
 07.2018 - “Alpine Cosmology workshop”