

prof. RNDr. Jiří Podolský, CSc., DSc.

Curriculum Vitae (March 2025)

Born: September 28, 1963 in Mladá Boleslav, Czechia.

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Education and academic qualifications: In 1982–87 studies of Mathematical Physics (RNDr. degree), in 1987–93 Ph.D. student at the Faculty of Mathematics and Physics, Charles University, Prague, supervisor Prof. Bičák (CSc. degree). In 2001 Habilitation (doc. degree) in Theoretical Physics, Charles University. In 2006 awarded a Doctor of Science degree (DSc.) by the Academy of Sciences of the Czech Republic. In 2011 Professor (prof. degree) in Theoretical Physics, Charles University.

Scientific career and current position: Graduate Assistant (1990–91) at the Department of Physics and Astronomy, University of New Mexico (Albuquerque, USA). Assistant (1991–95), Senior Assistant (1995–2001), Associate Professor (2002–11) and Full Professor (since 2012) at the Institute of Theoretical Physics, Faculty of Mathematics and Physics, Charles University, Prague.

Recent research in relativity: Theoretical studies in Einstein’s general relativity, quadratic gravity and 2+1 gravity. In particular, mathematical investigation and physical interpretation of exact solutions of the Einstein field equations which represent gravitational waves (spacetimes with any cosmological constant, impulsive waves in flat and curved backgrounds, gyratons, asymptotic behavior of fields, geodesic deviation, chaotic motion of particles). Classification and physical investigation of other spacetimes, namely study of rotating and accelerating charged black holes with any cosmological constant. Exact solutions of Einstein’s equations in higher and lower dimensions, their classification and analysis. In recent years also further generalizations beyond Einstein’s gravity, namely general quadratic gravity, Einstein–Weyl, Gauss–Bonnet and critical gravity.

Monographs:

- With Jerry B. Griffiths author of *Exact Space-Times in Einstein’s General Relativity* published in the series Cambridge Monographs on Mathematical Physics: Cambridge University Press, 2009, 540 pages. Revised paperback edition in 2012, 548 pages.

Citations: SCOPUS: 756 (without self-citations 710)

- Co-author of monograph *Gravitation: Following the Prague Inspiration*, A Volume in Celebration of the 60th Birthday of Jiří Bičák, Singapore: World Scientific, 2002.
- Co-author of book *Einstein Again in Prague: Physics in the TV Series Genius*, Prague: MatfyzPress, 2021.
- Author of textbook *Teoretická mechanika ve třech knihách*, Prague: Karolinum a MatfyzPress, 2024.

Articles:

Currently, 118 articles in refereed international journals (Physical Review Letters, Physical Review D, Living Reviews in Relativity, Journal of High Energy Physics, Classical and Quantum Gravity, General Relativity and Gravitation, Physics Letters A, Journal of Mathematical Physics, and others), of which 19 during the past 5 years.

Citations: WOS-Clarivate: 2744, h-index 30 (without self-citations 2237)
SCOPUS: 3040, h-index 30 (without self-citations 2260)
INSPIRE-HEP: 3164, h-index 30 (without self-citations 2328)

About 30 contributions to conference proceedings. Referee of many papers submitted to leading professional journals, diploma theses, dissertations and research proposals.

Foreign contacts and research stays (selection): Since 1996 Prof. Griffiths, Loughborough University, UK (25 joint publications and monograph *Exact Space-Times in Einstein’s General Relativity*, Cambridge, 2009). Collaboration with Prof. Steinbauer and Dr. Clemens Sämann, University of Vienna, Austria (since 1999, 8 publications), and Dr. Ortogio, University of Trento, Italy (since 2000, 13 publications). Other contacts during short-term visits, e.g., with Prof. Finley and Prof. Cahill, University of New Mexico, Albuquerque, USA (1990–91), Prof. Kramer, Friedrich-Schiller Universität, Jena, Germany (1995), Prof. Edgar, Linköping University, Sweden (2009), Prof. Frolov and Dr. Zelnikov, University of Alberta, Edmonton, Canada (2009, 2 publications),

DAMPT, University of Cambridge, UK (2011), Dr. Kubizňák, Perimeter Institute, Waterloo, Canada (2015), Prof. Maeda, Hokkai-Gakuen University, Sapporo, Japan and Albert Einstein Institute Golm, Germany (since 2018, 4 publications), Prof. José Senovilla, Universidad del País Vasco, Bilbao, Spain (2024, 1 publication).

Membership in academic organizations, collaborations, organizing committees and boards:

International Society on General Relativity and Gravitation (since 2003). In 2022 elected for 9 years as a member of the ISGRG International Committee representing Central/Eastern Europe region.

Organization of the ISGRG main triennial GR conferences:

- Chair of the A1 Session: Exact solutions and their interpretation, GR21, New York, USA, 2016.
- Member of the Scientific Organizing Committee, GR22, Valencia, Spain, 2019.

Union of Czech Mathematicians and Physicists, and also Czech Physical Society (since 2006), related to:

- Editorial Board Member of *Advances in Mathematics, Physics and Astronomy* (2006–24).

International Astronomical Union (since 2009).

Associate Member of the LISA Consortium, Fundamental Physics and Advocacy&Outreach WG (since 2018).

Member of the Observational Science Board of the Einstein Telescope, Fundamental Physics (since 2021).

Academic recognition:

- Honorable Mention, Awards for Essays by Gravity Research Foundation (1992).
- The First Prize in Physics, Bolzano Foundation, Prague (1998).
- Significant Activity in Popularization of Physics Award, Czech Physical Society (2007).
- The Best Monograph Award, Dean of the Faculty, Charles University (2009).
- The Outstanding Representation of the Faculty Award, Dean of the Faculty, Charles Univ. (2021).
- The Werner von Siemens Award in the category Best Educator (2022).
- The František Nušl Award for lifetime achievement in theoretical physics, Czech Astron. Soc. (2022).

Grants (principal investigator or co-investigator): 6 visiting grants from the Royal Society and the London Mathematical Society, 1997–2004, and the UK EPSRC grant *Exact properties of spinning and accelerating black holes*, 2005–07 (with Griffiths). GAČR grant 202/08/018 *Exact solutions in higher dimensional and classical gravity*, 2008–11. GAČR grant P203/12/0118 *Spacetimes and fields in higher dimensional and classical gravity*, 2012–16. Austria-Czechia Project 7AMB13AT003, *Mathematical aspects of impulsive gravitational waves*, 2013–14 (with Steinbauer). GAČR grant 17-01625S *Spacetimes and fields in Einstein's theory of gravity and its generalizations*, 2017–19. GAČR grant 20-05421S *Exact spacetimes in Einstein's theory, quadratic gravity, and other generalizations*, 2020–22. GAČR grant 23-05914S *Advanced techniques applied to black-hole and gravitational-wave exact spacetimes*, 2023–25.

Participation in other grants: 6 GAČR grants *Relativistic physics and astrophysics*, 1993–2013 (Bičák). 4 GAUK grants on *Relativistic theory of gravitation, astrophysics and cosmology*, 1993–2003 (Bičák). *Centre for theoretical astrophysics*, 2006–11 (Palouš). Research program *Physical study of objects and processes in the solar system and in astrophysics*, 2007–13 (Bičák). GAČR Excellence in Basic Research grant *Albert Einstein center for gravitation and astrophysics*, 2014–18 (Bičák). GAČR grants *Black-hole and radiative spacetimes: exact methods*, 2019–21 (Krtouš), *Black-hole spacetimes in a general dimension, their properties and interpretations*, 2022–24 (Krtouš).

Pedagogical activities: Lectures on classical mechanics, electrodynamics, general relativity, gravitational waves, mathematical methods of physics, differential geometry, and history of physics. Supervisor of finished 6 Ph.D., 12 Master and 8 Bachelor students. Teaching Coordinator (garant) for Bachelor and Master Study Programs of Physics at the Faculty of Mathematics and Physics, Charles University, Prague (since 2004).

Outreach:

- Translation of 21 popular-science books on various topics of theoretical physics and astronomy.
- More than 50 pedagogical or popularizing articles in various Czech journals.
- More than 125 lectures for a general audience and secondary school students.

Media outreach:

- Series of more than 75 lectures on modern physics and history of physics (YouTube, since 2013).
- Science advisor for 10-episode TV series *Genius: Einstein* produced by the National Geographic, shot in Czechia, September 2016–March 2017; described in *Einstein Again in Prague* (MatfyzPress, 2021).