Curriculum Vitae

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Languages of scientific interest (spoken, written & read):
English (excellent), German (good), French (communicative)

Academics:

- **Master of Science:** Faculty of Physics, University of Warsaw (date of M.Sc: 10 July 2001)
- **Doctorate:** Physics (astrophysics), Nicolaus Copernicus Astronomical Center, PAS
  - Thesis supervisor: prof. Paweł Haensel,
  - Thesis title: *"Neutron stars dynamics and the equation of state of dense matter"*,
  - Date of PhD defense: 16 June 2005.
- **Post-doctoral stages:**
  - Post-doc position, Nicolaus Copernicus Astronomical Center PAS (October 2005 – October 2008),
  - Marie Curie Intra-European Fellowship, Paris Observatory, section LUTh (Laboratoire de l'Univers et de ses Théories, March 2006 – September 2007),
  - Marie Curie Re-integration Fellowship, Nicolaus Copernicus Astronomical Center PAS (April 2008 – March 2011),
  - Assistant professor (tenure-track) position, Nicolaus Copernicus Astronomical Center PAS (October 2008 – October 2013),

Other achievements:

- PhD thesis with distinction from the N.Copernicus Astronomical Center Scientific Council,
- Annual Prize for Young Scientists, 2005, N.Copernicus Astronomical Center,
- Honourable mention in prof. G. Białkowski PAS (Foundation for Polish Science) competition for the best PhD thesis in physics/astronomy in years 2004-2006,

Participation in financed research projects and grants

1. Title of the project: **Neutron stars. Physical processes, dynamics, evolution** *(Gwiazdy neutronowe. Procesy fizyczne, dynamika, ewolucja)*, financing entity: Polish State Committee for Scientific Research (KBN), duration: February 2001 - February 2004, PI: Paweł Haensel

2. Title of the project: **Phase transitions in rotating neutron stars and the observations of pulsars.** *(Przejścia fazowe w rotujących gwiazdach neutronowych i obserwacje pulsarów)*, financing entity: KBN, duration: March 2002 - February 2003, PI: Michał Bejger

3. Title of the project: **Phase transitions in dense matter - pulsar "superglitches" and the evolution of rotation of accreating neutron stars.** *(Przejścia fazowe w gęstej materii - "superglicze" pulsarów i ewolucja rotacji akreujących gwiazd neutronowych)*, financing entity: KBN - Ministry of Scientific Research and Information Technology, duration: June 2003 - June 2004, PI: Michał Bejger

4. Title of the project: **Neutron stars. Physical processes, dynamics, evolution. Gravitational waves.** *(Gwiazdy neutronowe. Procesy fizyczne, dynamika, ewolucja. Fale grawitacyjne)*, financing entity: Ministry of Scientific Research and Information Technology, duration: September 2004 - September 2007, PI: Paweł Haensel

5. Title of the project: **Neutron stars dynamics.** *(Dynamika gwiazd neutronowych)*, financing entity: Ministry of Science and Higher Education, duration: June 2007 - June 2010, PI: J. Leszek Zdunik

6. **Polish-French collaboration in astrophysics JUMELAGE–LEA Astro-PF**, duration: 2001 - 2011

7. **Marie Curie Intra-european Fellowship, DYNEOS project (MEIF-CT-2005-023644)**, duration: march 2006 - september 2007

8. **Marie Curie European Reintegration Grant, DYNEOS2 project (ERG 224793)**, duration: april 2008 - march 2011

Scientific publications

30. **Bejger, M.**, Zdunik, J. L., Haensel, P., and Fortin, M., *Compression of matter in the center of accreting neutron stars*, Astron. Astrophys. in print (2011) [arXiv:1109.1179],

29. **Bejger, M.**, Fortin, M., Haensel, P., and Zdunik, J. L., *Implications of parameters of PSR J1903+0327 for its progenitor neutron star*, Astron. Astrophys. in print (2011) [arXiv:1106.2432],

28. **Bejger, M.**, Zdunik, J. L., and Haensel, P., *Approximate analytic expressions for circular orbits around rapidly rotating compact stars*, Astron. Astrophys., 520, A16 (2010),

27. Dimmelmeier, H., **Bejger, M.**, Haensel, P., Zdunik, J. L., *Dynamic migration of rotating neutron stars due to a phase transition instability*, MNRAS, 396, 2269 (2009)

26. Haensel, P., Zdunik, J. L., **Bejger, M.**, Lattimer, J. M., *Keplerian frequency of uniformly rotating neutron stars and quark stars*, Astron. Astrophys., 502, 605 (2009)

25. Heyvaerts, J., Bonazzola, S., **Bejger, M.**, Haensel, P., *Luminosity of a quark star undergoing torsional oscillations and the problem of gamma ray bursts*, Astron. Astrophys., 496, 317 (2009)

24. Haensel, P., Zdunik, J. L., **Bejger, M.**, *Fast rotation of neutron stars and equation of state of dense matter*, proceedings of the "Jean-Pierre Lasota, X-ray binaries, accretion disks and compact stars" conference, eds. M. Abramowicz, O. Straub, New Astronomy Reviews 51, 785 (2008)

23. Zdunik, J. L., **Bejger, M.**, Haensel, P., *Crustal rigidity and rotational deformation of neutron stars*, Astron. Astrophys., 491, 489 (2008)

22. Ansorg, M., Gondek-Rosińska, D., Villain, L., **Bejger, M.**, *The maximum mass of differentially rotating neutron stars*, Spanish relativity meeting ERE07 proceedings, EAS Publications Series, 30, 373 (2008)

21. Zdunik, J. L., Haensel, P., **Bejger, M.**, Gourgoulhon, E., *EOS of dense matter and fast rotation of neutron stars*, proceedings of the International Symposium on Exotic States of Nuclear Matter, EXOCT07, World Scientific Publishing Co., p.236 arXiv:0710.5010

20. **Bejger, M.**, Zdunik, J. L., Haensel, P., Gourgoulhon, E., *The energy release–stellar angular momentum independence in rotating compact stars undergoing first-order phase transitions*, proceedings of the International Symposium on Exotic States of Nuclear Matter, EXOCT07, World Scientific Publishing Co., p.286 arXiv:0710.1528

19. Zdunik, J. L., **Bejger, M.**, Haensel, P., Gourgoulhon, E., *Strong first-order phase transition in a rotating neutron star core and the associated energy release*, Astron. Astrophys., 479, 515 (2008)

18. Haensel, P., **Bejger, M.**, Zdunik, J. L., *Two branches of neutron stars - reconciling a* 2 $M_\odot$ *pulsar and SN1987A*, submitted to Astron. Astrophys. Letters, arXiv:0705.4594

17. **Bejger, M.**, Haensel, P., Zdunik, J. L., *Rotation at 1122 Hz and the neutron star structure*, Astron. Astrophys. Letters, 464, L49 (2007)

16. Bonazzola, S., Villain, L., **Bejger, M.**, *MHD of rotating compact stars with spectral methods: description of the algorithm and tests*, Class. Quantum Grav., 24, 221 (2007) (special "New Frontiers in Numerical Relativity" issue)

15. Zdunik, J. L., **Bejger, M.**, Haensel, P., Gourgoulhon, E., *Energy release associated with a first-order phase transition in a rotating neutron star core*, Astron. Astrophys., 465, 533 (2007)

14. Zdunik, J. L., **Bejger, M.**, Haensel, P., Gourgoulhon, E., *Phase transitions in rotating neutron stars cores: back bending, stability, corequakes and pulsar timing*, Astron. Astrophys., 450, 747 (2006)

13. **Bejger, M.**, Bulik, T., Haensel, P., *Constraints on the dense matter EOS from the measurements of PSR J0737-3039A moment of inertia and PSR J0751+1807 mass*, MNRAS, 364, 635 (2005)

12. **Bejger, M.**, *Changes in the global parameters of polytropic stars induced by the appearance of the soft core*, Acta Phys. Polon. B, 36, 2859 (2005)

11. **Bejger, M.**, Haensel, P., Zdunik, J. L., *Mixed-phase induced core-quakes and the changes in neutron star parameters*, MNRAS, 359, 699 (2005)

10. Zdunik, J. L., Haensel, P., **Bejger, M.**, *Spin-up of the hyperon-softened accreting neutron stars*, Astron. Astrophys., 441, 207 (2005)

9. **Bejger, M.**, Gondek-Rosińska, D., Gourgoulhon, E., Haensel, P., Taniguchi, K., & Zdunik, J. L. *Impact of the nuclear equation of state on the last orbits of binary neutron stars*, Astron. Astrophys., 431, 297 (2005)

8. Gondek-Rosińska, D., **Bejger, M.**, Bulik, T., Gourgoulhon, E., Haensel, P., Limousin, F., Taniguchi, K., Zdunik, J. L., *The final phase of inspiral of neutron stars: realistic equations of state*, Advances in Space Research (doi:10.1016/j.asr.2006.09.021), COSPAR 2004, gr-qc/0412010 (2007)

7. Gondek-Rosińska, D., Bulik, T., Gourgoulhon, E., **Bejger, M.**, Haensel, P., Zdunik, J. L., *Gravitational waves from binary neutron stars*, Societe Francaise d'Astronomie et d'Astrophysique: Scientific Highlights 2004, Proc. Semaine de l'Astrophysique Francaise, Paris, France, Eds. F. Combes, D. Barret, T. Contini, F. Meynadier, L. Pagani, EdP Sciences (2004)

6. **Bejger, M.**, & Haensel, P., *Surface gravity of neutron stars and strange stars*, Astron. Astrophys., 420, 987 (2004)

5. Zdunik, J. L., Haensel, P., Gourgoulhon, E., & **Bejger, M.**, *Hyperon softening of the EOS of dense matter and the spin evolution of isolated neutron stars*, Astron. Astrophys., 416, 1013 (2004)

4. **Bejger, M.**, & Haensel, P., *Accelerated expansion of the Crab Nebula and evaluation of its neutron-star parameters*, Astron. Astrophys., 405, 747 (2003)

3. **Bejger, M.**, Yakovlev, D. G., Gnedin O. Y., *Cooling of superfluid neutron stars with muons*, Acta Phys. Polon. B, 34, 233 (2003)

2. **Bejger, M.**, & Haensel, P., *Moments of inertia for neutron and strange stars: limits derived for the Crab pulsar*, Astron. Astrophys., 396, 917 (2002)

1. Mizerski, T., & **Bejger, M.**, *Automatic variability analysis of bulge stars in OGLE II image subtraction database*, Acta Astronomica, 52, 61 (2002)

LIGO-Virgo collaboration publications:

1. Abadie, J., et al., *Beating the Spin-down Limit on Gravitational Wave Emission from the Vela Pulsar*, Astrophysical Journal, 737, 93 (2011),

Popular articles (in polish):

1. *Nowe testy Ogólnej Teorii Względności (New tests of General Relativity)*, "Urania", 1 (2005)
2. *Strzałka czasu (Arrow of time)*, special issue of "Wiedza i Życie" related to the concept of time (2006)
3. *Gwiezdne pulsy [Kosmiczne zegary] (Stellar pulses [Tracking the accuracy of cosmic clocks])*, "Academia", the magazine of the Polish Academy of Sciences, 1 (2007)
4. *Ciche supernowe (Silent supernovae)*, "Delta", 7 (422) (2009)
5. *Pulsarowa menaeria (Pulsars' menagerie)*, "Delta", 11 (450) (2011),
6. *Prosto z nieba (From the heavens)*, monthly column in "Delta" since June 2011.