

## RNDr. Otakar Svítek, Ph.D.

Institute of Theoretical Physics,  
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### Education

Doctor of Philosophy in Theoretical Physics **2001-2005**  
Institute of Theoretical Physics, Charles University  
**Thesis Topic:** Gravitational waves: approximate methods and exact solutions

Master of Science in Theoretical Physics **1996-2001**  
Institute of Theoretical Physics, Charles University  
**Diploma Thesis:** Gravitational waves in high-frequency approximation

### Position

**Assistant Professor**, Physics Department **2012- up to Now**  
Institute of Theoretical Physics, Charles University  
**Courses:** Loop Variables and Holonomies, Casual Structure and Quasilocal Horizons, Special Relativity, Electrodynamics, Applied Mathematics, Introduction to Theoretical Physics, Proseminar to Theoretical Physics, Philosophical Seminars

**Teaching Assistant (FT)**, Physics Department **2006-2011**  
Institute of Theoretical Physics, Charles University  
**Courses:** Electrodynamics, Applied Mathematics, Special Relativity

### Students Supervised in Research

J. Cerny, PhD student, “**Canonical quantization of black hole spacetimes**” **2018- up to Now**

L. Polcar, PhD student, “**Weyl metrics and their generalizations: classical and quantum viewpoint**” **2018- up to Now**

J. Kaninsky, PhD student, “**Effective models of Quantum Gravity**” **2017- up to Now**

J. Pejcha, PhD student, “**Covariant quantization of spacetime models**” **2016-up to Now**

J. Cerny, MS student, “**Canonical quantization of midisuperspace models**” **2017- 2018**

J. Kaninsky, MS student, “**Probabilistic Spacetimes**” **2016-2017**

E. Polaskova, MS student, “**Quasilocal horizons**” **2014-2015**

A. Kadlecova, MS student, “ <b>Gravitational waves in cosmology</b> ”	<b>2014-2015</b>
D. Vrba, PhD student, “ <b>Inhomogeneous cosmological models</b> ”	<b>2010-2014</b>
P. Kaspar, PhD student, “ <b>Inhomogeneous cosmological models and averaging methods</b> ”	<b>2010-2014</b>
T. Tintera, MS student, “ <b>Interaction of gravitational radiation with matter</b> ”	<b>2010-2013</b>
P. Kaspar, MS student, “ <b>Macroscopic gravity</b> ”	<b>2008-2010</b>

### **Invited seminars:**

University of Tehran, 2.12.2019

### **Conferences**

Talks given at the these conferences:

invited talk “Nonvacuum Robinson-Trautman spacetime” at local workshop (4-5.12.2019)  
Shiraz University, Iran

### **Spanish-Portuguese Relativity Meeting (EREP):**

EREP2017, EREP2016, EREP2015, EREP2014, EREP2013, EREP2012, EREP2011,  
EREP2009, EREP2008.

**General Relativity (GR):** GR17 (Dublin-2004) and GR19(Mexico City-2010).

**Marcel Grossman Meeting:** MGM12, Paris, 2009.

### **Joint European and National Astronomy Meeting (JENAM)**

JENAM(Budapest-2003) and Poster at the JENAM (Yerevan- 2007).

### **Workshops:**

Quantum Gravity and Quantum Geometry, Nottingham, 2008.

From Quantum to Emergent Gravity, Trieste, 2007.

**Refereeing for scientific journals:** PRL, PRD, CQG, GRG, JMP, IJMPD.

### **Grant participation**

Standard, GAČR, doc. O. Semerák, 2017-2019

Project of Excellence, GAČR, prof. J. Bičák, 2014-2018

Standard, GAČR, prof. J. Bičák, 2009-2013

Junior, GAČR, O. Svítek, 2007-2009

participation on several GAUK student grants

## PUBLICATIONS

### Impacted journals

1. *Quantum fate of timelike naked singularity with scalar hair*,  
O. Svitek, T. Tahamtan and A. Zampeli, *Annals of Physics* 418, 168195 (2020)
2. *Quasilocal horizons in inhomogeneous cosmological models*,  
E. Polaskova and O. Svitek, *Class. Quantum Grav.* 36, 025005 (2019).
3. *Nonsymmetric dynamical thin-shell wormhole in Robinson-Trautman class*,  
O. Svitek and T. Tahamtan, *Eur. Phys. J. C.* 78, 167(2018).
4. *Kundt spacetimes minimally coupled to scalar field*,  
T. Tahamtan and O. Svitek, *Eur. Phys. J. C.* 77, 384(2017).
5. *Properties of Robinson-Trautman solution with scalar hair*,  
T. Tahamtan and O. Svitek, *Phys. Rev. D* 94, 064031(2016).
6. *Robinson-Trautman solution with nonlinear electrodynamics*,  
T. Tahamtan and O. Svitek, *Eur. Phys. J. C.* 76, 335(2016).
7. *Ultrarelativistic boost of global monopole*,  
O. Svitek and T. Tahamtan, *Gen. Rel. Grav.* 48, 22(2016 **Editor's Choice**).
8. *Averaging in LRS class II spacetimes*,  
Petr Kaspar and O. Svitek, *Gen. Rel. Grav.* 47, 4(2015).
9. *Robinson-Trautman solution with scalar hair*,  
T. Tahamtan and O. Svitek, *Phys. Rev. D* 91, 104032(2015).
10. *Resolution of curvature singularities from quantum mechanical and loop perspective*,  
T. Tahamtan and O. Svitek, *Eur. Phys. J. C.* 74, 2987(2014).
11. *Averaging in cosmology based on Cartan scalars*,  
Petr Kaspar and O. Svitek, *Class. Quant. Grav.* 31, 095012(2014) .
12. *Modelling Inhomogeneity in Szekeres Spacetime*,  
David Vrba and O. Svitek, *Gen. Rel. Grav.* 46, 1808(2014).
13. *Past horizons in D-dimensional Robinson-Trautman spacetimes*,  
O. Svitek, *Phys. Rev. D* 84, 044027 (2011).
14. *The damping of gravitational waves in dust*,  
O. Svitek, *Phys. Scr.* 79, 025003(2009).

15. *Past horizons in Robinson-Trautman spacetimes with a cosmological constant*, Jiri Podolsky and O. Svitek, Phys. Rev. D 80, 124042(2009).
16. *Evolution of high-frequency gravitational waves in some cosmological models*, O. Svitek and Jiri Podolsky, Czech. J. Phys. 56, 1367(2006).
17. *Radiative spacetimes approaching the Vaidya metric*, Jiri Podolsky and O. Svitek, Phys.Rev. D 71, 124001(2005).
18. *The Efroimsky formalism adapted to high-frequency perturbations*, O. Svitek and Jiri Podolsky, Class. Quant. Grav. 21, 3579(2004).
19. *Some high-frequency gravitational waves related to exact radiative spacetimes*, Jiri Podolsky and O. Svitek, Gen. Rel. Grav. 36, 387(2004).

## Proceedings

20. *Averaging in cosmology based on Cartan scalars*, Petr Kaspar and O. Svitek, J. Phys. Conf. Ser. 600, 012030(2015).
21. *Connection between horizons and algebraic type*, O. Svitek, Springer Proc. in Math. & Stat. 60, 421(2014).
22. *Averaging inside the LRS family*, Petr Kaspar and O. Svitek, Springer Proc. in Physics 157, 431(2014).
23. *Existence of horizons in Robinson-Trautman spacetimes of arbitrary dimension*, O. Svitek, Proceedings of 12th Marcel Grossmann Meeting 1075(2012, World Scientific).
24. *Conformal infinity in Robinson-Trautman-AdS spacetime*, O. Svitek, AIP Conf. Proc. 1458, 531(2012).
25. *Averaging in GR using Cartan scalars*, Petr Kaspar and O. Svitek, AIP Conf. Proc. 1458, 548(2012).
26. *Features of gravitational waves in higher dimensions*, O. Svitek, J. Phys. Conf. Ser. 229, 012070(2010).
27. *Apparent horizons in D-dimensional Robinson-Trautman spacetime*, O. Svitek, Physics and Mathematics of Gravitation, edited by K. E. Kunze, M. Mars, and M. A. Vazquez-Mozo, AIP Conf. Proc. 1122(2009).

Submitted papers:

28. *Reversing the Null Limit of the Szekeres Metric*,  
Ch. Hellaby and O. Svitek arXiv:2007.11350 (Submitted to CQG).