

Curriculum Vitae — David Fajman

Full Name David Miro Fajman (name at birth: Klawonn)

Current Position **Assistant Professor** (tenure track) at the Institute for Gravitational Physics - *University of Vienna*, Austria
- **Deputy Group speaker** Gravitational Physics
- Selection Committee Vienna Doctoral School
- Doktoratsbeirat at the Faculty of Physics (starting October 2020)

Contact ✉ Faculty of Physics, Boltzmanngasse 5, 1090 Vienna
@ David.Fajman@univie.ac.at
☎ +43 (0) 1 - 4277-51561
🌐 <http://homepage.univie.ac.at/david.fajman>

Languages German (mother tongue), English (fluent)
Family status married + 2

EXPERIENCE & EDUCATION

01/2018 - present **University of Vienna**
Assistant Professor, tenure track

03/2017 - 12/2017 **University of Vienna**
Faculty of Physics, Senior Postdoc, Project leader, FWF Project

01/2017 - 03/2017 **University of Vienna**
Faculty of Mathematics, Senior Postdoc

01/2013 - 01/2017 **University of Vienna**
Institute for Gravitational Physics, Postdoc

06/2012 - 12/2012 **Max Planck Institute for Gravitational Physics**
Albert Einstein Institute - Potsdam
Junior Scientist

06/2008 - 05/2012 **Max Planck Institute for Gravitational Physics**
Albert Einstein Institute - Potsdam
Ph.D. mathematics (05/2012)

2002 - 2008 **Humboldt Universität zu Berlin**
Diploma physics (12/2008)
Diploma mathematics (10/2007)

AWARDS/GRANTS/SCHOLARSHIPS

2018 Short Term Scientific Mission of the COST action **GWVerse**
Matter dominated dynamics in cosmology

2016 **FWF (Austrian Science Fund)** – Project
Geometric Transport equations and the nonvacuum Einstein flow
budget: 228.721 Euro

2016 **Minerva Postdoctoral Scholarship** (offer received, declined due to FWF project)

2016 **Chandrasekhar Award**
of the International Society on General Relativity and Gravitation

2008 - 2012 **International Max Planck Research School Fellowship**

2009 Minerva Short-Term Research Grant of the **Minerva Foundation**

2006 - 2007 Research fellow scholarship
of the **German-Israeli-Foundation (GIF)**

ORGANIZED SEMINARS/CONFERENCES

- MasterClass: Co-founder and coordinator of the [Master Class Mathematical Physics](#) Program at the University of Vienna's Faculties of Mathematics and Physics
- Organized conferences: **ESI workshop:** *Geometric transport equations in General Relativity*, at the **Erwin-Schrödinger Institute** (Vienna), budget: 18.400 Euro, February 20-24, 2017, with H. Andréasson (Gothenburg), J. Joudioux (Vienna)
- ESI program (6 weeks):** *Mathematical perspectives of gravitation beyond the vacuum regime*, at the **Erwin-Schrödinger Institute** (Vienna), budget: \approx 60.000 Euro (tbc), February/March, 2021 with H. Andréasson (Gothenburg), J. Joudioux (Potsdam), T. Oliynyk (Monash)

TEACHING EXPERIENCE

- 2013 Problem class in *Mathematical Relativity II*, Seminar on *Symmetries in Relativity*
- 2013 - 2014 *Partial Differential Equations in General Relativity I* (Lecture + Seminar)
- 2014 *Partial Differential Equations in General Relativity II* (Lecture + Seminar)
Mathematical Methods II (Problem Classes)
- 2015 *Mathematical Methods I* (Problem Classes)
- 2016 *Mathematical Methods I* (Lecture + Problem Class), Theory Lab
- 2017 *Analysis II* (Problem Classes)
- 2018 *Mathematical General Relativity II* (Lecture), *Theoretical Electrodynamics* (Lecture)
- 2019 *Mathematical General Relativity III* (Lecture), *Theoretical Electrodynamics* (Lecture)
- 2020 *Mathematical General Relativity II* (Lecture), *Mathematical General Relativity III* (Lecture)

SUPERVISION

- Postdocs: Gernot Heiel (U Vienna) since 06/2018
- PhD students: Hamed Barzegar (U Vienna) since 02/2018
Zoe Wyatt (U Vienna) 09/2018-02/2019 (visit. PhD student)
- Master students: Maximilian Thaller (U Vienna) graduation 10/2014
Philip Schffer (U Vienna) graduation 08/2017
Peter Eigenschink (U Vienna) graduation 01/2017
- Bachelor students: 2016: Peter Allmer; 2017: Christoph Schaman; 2019: Chiara Martyka, Konrad Martinek
Maximilian Kraft, Robert Tiefenbacher, Bernhard Hofbauer, 2020: Jakob Holbck, M. v. Terzi

SELECTED CONFERENCES/TALKS

- 09/2020 Virtual Conference of the Polish Society on Relativity 2020
- 11/2019 *Mittag-Leffler Institute*, Stockholm, Program: *General Relativity, Geometry and Analysis*
- 09/2019 *Minisymposium on Mathematical Aspects of General Relativity, DMV, Karlsruhe*
- 07/2019 *22nd International Conference on General Relativity and Gravitation*, Valencia
- 10/2018 Analysis and Probability Seminar, Chalmers University Gothenburg
- 07/2018 International Congress on Mathematical Physics, Montreal
- 03/2018 Workshop: Field Equations on Lorentzian space-times, Mathematics Faculty, U Hamburg
- 09/2017 University of Vienna, Faculty of Physics
- 07/2017 Summer school: *Between Geometry and Relativity, Dynamics in General Relativity*, 4 lectures
- 12/2016 Geometry and Dynamics Seminar, Tel Aviv University, Mathematics Faculty
- 11/2016 Mathematics Faculty, Ben-Gurion University, Ber Sheva
- 11/2016 PDE Seminar, Hebrew University, Jerusalem
- 11/2016 Nonlinear Analysis Seminar, Technion, Haifa
- 11/2016 Applied Mathematics Seminar, Bar Ilan University, Ramat Gan
- 11/2016 Oberseminar Analysis, Mathematics Faculty, University of Bonn
- 07/2016 *21st International Conference on General Relativity and Gravitation*, Columbia University, New York
- 10/2015 *Dynamics of Self-gravitating matter*, Institute Henri Poincar, Paris
- 04/2015 Kinetic and Mathematical Physics Seminar, Chalmers University, Gothenburg
- 03/2015 Seminar *Albert-Einstein-Institute*, Potsdam-Golm
- 01/2015 Oberseminar *Geometrische Analysis und Mathematische Relativittstheorie*, Mathematische Fakultt, University of Tbingen

01/2015	Oberseminar <i>Globale Analysis</i> , Math. Fak. University of Regensburg
06/2014	Non-linear Analysis Seminar, Mathematics Faculty, Technion, Haifa
06/2014	<i>Second Joint International Meeting of the AMS and the IMU</i> , Tel Aviv
11/2013	<i>Initial Data and Evolution Problems in General Relativity</i> , MSRI, Berkeley
12/2012	<i>Dynamics of General Relativity Workshop at the ESI</i> , Vienna
12/2012	<i>Relativistic Kinetic theory</i> Wolfgang Pauli Institute, Vienna
08/2012	<i>Mathematical Aspects of General Relativity Workshop in Oberwolfach</i>
07/2011	<i>Dynamics of General Relativity</i> , Workshop at the ESI, Vienna
01/2010	<i>Quantitative Studies of Nonlinear Wave Phenomena</i> , ESI, Vienna
10/2009	<i>Mathematical Aspects of General Relativity Workshop in Oberwolfach</i>

REVIEWER FOR JOURNALS

Archive for Rational Mechanics and Analysis, Communications in Mathematical Physics, Annales Henri Poincaré, Communications on Pure and Applied Analysis, Classical and Quantum Gravity, Mathematical Proceedings of the Cambridge Philosophical Society, Mathematical Reviews, Analysis and Mathematical Physics, Annals of PDE

PUBLICATIONS

1. *Comment on "Resolving isospectral 'drums' by counting nodal domains"*
with J. Brüning and C. Puhle
J. Phys. A: Math. Theor. 40, (2007) 15143 – 15147
2. *Inverse Nodal Problems*
J. Phys. A: Math. Theor. 42, (2009) 175209 – 175219
3. *On the nodal count for flat tori*
with J. Brüning
Comm. Math. Phys. 313, (3), (2012) 791 – 813
4. *Nodal domains of a non-separable problem - the right angled isosceles triangle*
with A. Aronovitch, R. Band and S. Gnuzmann
J. Phys. A: Math. Theor. 45, (2012) 085209 – 085226; Featured Article
5. *Area inequalities for stable marginally outer trapped surfaces
in Einstein-Maxwell-dilaton theory,*
with W. Simon,
Adv. Theor. Math. Phys. 8, (3), (2014) 685 – 704
6. *Static solutions for the Einstein-Vlasov system with non-vanishing cosmological
constant,*
with H. Andréasson and M. Thaller,
SIAM J. Math. Anal. 47, (4), (2015) 2657 – 2688
7. *Topological Properties of Neumann Domains,*
with R. Band,
Ann. Henri Poincaré 17, (9), (2016) 2379 – 2407
8. *Future asymptotic behavior of 3-dimensional spacetimes with massive particles,*
Letter, Class. and Quantum Grav. 33, (11), (2016) 11LT01
9. *Local well-posedness for the Einstein-Vlasov system,*
SIAM J. Math. Anal. 48, (5), (2016) 3270 – 3321
10. *Models for Static Self-Gravitating Photon Shells and Geons,*
with H. Andréasson and M. Thaller,
Ann. Henri Poincaré 18, (2), (2017), 681 – 705
11. *The Einstein- Λ flow on product manifolds,*
with K. Kröncke,
Class. and Quantum Grav. 33, (23), (2016), 235018

12. *Courant–sharp eigenvalues of Neumann 2–rep–tiles*,
with R. Band and M. Bersudsky,
Lett. Math. Phys. 107, (2017), 821–859
13. *The nonvacuum Einstein flow on surfaces of negative curvature and nonlinear stability*,
Comm. Math. Phys. 353, (2), (2017), 905–961
14. *Topology and incompleteness for 2+1-dimensional cosmological spacetimes*,
Lett. Math. Phys. 107, (2017), 1157–1176
15. *A note on future complete spacetimes with massless outgoing particles*,
with C. Schaman,
Class. Quant. Grav. 34, (23), (2017), 077002
16. *A vector field method for relativistic transport equations with applications*,
with J. Joudioux and J. Smulevici,
Analysis and PDE 10, (7) (2017)
17. *The nonvacuum Einstein flow on surfaces of nonnegative curvature*,
Comm. PDE 43, (3), (2018)
18. *Stable fixed points of the Einstein flow with positive cosmological constant*,
with K. Kröncke,
Commun. Anal. Geom. 28, (7) (2020) 1533-1576
19. *On the massive-massless Einstein-Vlasov system in spherical symmetry*
with P. Eigenschink, J. Joudioux,
Phys. Rev. D 98, 044002, (2018)
20. *On the CMC-Einstein- Λ flow*,
with K. Kröncke,
Class. Quant. Grav. 35, (19), (2018), 195005
21. *Stable cosmological Kaluza-Klein spacetimes*,
with K. Kröncke, V. Branding,
Comm. Math. Phys. 368, (3), (2018), 1087–1120
22. *Kantowski-Sachs cosmology with Vlasov matter*
with G. Heiel
Class. Quant. Grav. 36, (13), (2019), 135002
23. *The stability of the Minkowski space for the Einstein-Vlasov system*,
with J. Joudioux, J. Smulevici,
accepted for publication by **Analysis and PDE**, (2019), arXiv:1707.06141
24. *Isotropization of slowly expanding spacetimes*
with H. Barzegar, G. Heiel
Phys. Rev. D 101, (2020), 044046
25. *Nonlinear Stability of the Milne model with matter*,
with L. Andersson,
Comm. Math. Phys. 378, (2020), 261–298
26. *On the Oscillations and Future Asymptotics of locally rotationally symmetric Bianchi type iii cosmologies with a massive scalar field*
with G. Heiel, M. Maliborski
Class. Quant. Grav. 37, (2020), 135009
27. *Future Attractors in 2+1 Dimensional Λ Gravity*,
Phys. Rev. Lett. 125, 121102 (2020)
28. *Attractors of the Einstein-Klein-Gordon system*
with Z. Wyatt,
Comm. PDE 46, 1, (2020), 1-30
29. *Stabilizing relativistic fluids on spacetimes with non-accelerated expansion*
with T. Oliynyk, Z. Wyatt
accepted for publication by **Comm. Math. Phys.**, (2020), arXiv:2002.02119

30. *Asymptotic Stability of Minkowski spacetime with non-compactly supported massless Vlasov matter*
with L. Bigorgne, J. Joudioux, J. Smulevici, M. Thaller
accepted for publication by **Arch. Rat. Mech. Anal.**, (2020), arxiv:2003.03346

PREPRINTS

31. *Averaging with a time-dependent perturbation parameter*
with G. Heiel, J. W. Jang
(2020), arXiv:2006.12844
32. *Stable cosmologies with collisionless charged matter*
with H. Barzegar
(2020), arXiv:2012.14241