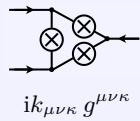


# DR. CORNELIUS STEFAN RAMPF

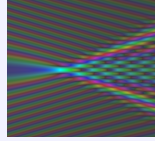
THEORETICAL COSMOLOGIST  
cornelius.stefan.rampf@irb.hr

Ruder Bošković Institute  
Division of Theoretical Physics  
Bijenička cesta 54  
10000 Zagreb

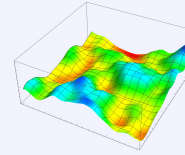
Research includes:



perturbation theory  
for the cosmic  
large-scale structure  
& asymptotic methods



shell-crossings  
(blow-ups) in  
cosmic and  
general fluids



synergies between  
analytical approaches  
and numerical  
simulations

## Education

Feb 2010 – Mar 2013      PhD in Theoretical Physics, defence at 10th July 2013.  
RWTH Aachen University, Germany.  
Advisor: Prof. Yvonne Wong.  
Thesis in theoretical cosmology. (magna cum laude)



Oct 2004 – Nov 2009      Diploma in Theoretical Physics, 16th November 2009.  
University of Karlsruhe / KIT, Germany.  
Thesis in theoretical high-energy physics. (magna cum laude)



## Professional History

Feb 2024 – present      **Ruder Bošković Institute, Zagreb**  
Permanent staff, Research Associate

Feb 2021 – Jan 2024      **University of Vienna**  
Postdoctoral Researcher

Jul 2018 – Jan 2021      **Observatoire de la Côte d'Azur, Nice**  
Marie Skłodowska–Curie Fellow and Postdoctoral Researcher

Mar 2016 – Jun 2018      **University of Heidelberg**  
DFG Research Fellow and Postdoctoral Researcher (except Sep 2016 - Dec 2016)

Sep 2016 – Dec 2016      **The Technion, Israel Institute of Technology, Haifa**  
Visiting Postdoctoral Research Fellow

Mar 2014 – Feb 2016      **University of Portsmouth**  
DFG Research Fellow

Nov 2013 – Feb 2014      **Albert Einstein Institute, Potsdam**  
Visiting Postdoctoral Research Fellow

Apr 2013 – Oct 2013      **University of New South Wales, Sydney**  
Research Associate

## Third-party funds

- Marie Skłodowska–Curie fellowship (grant no. 795707), 2 years, evaluation score 96%, proposal got evaluated into the top 2% of 763 applications within the physics section 185.0 k€
- Individual research fellowships from the German Research Foundation (DFG): 2 years abroad (RA 2523/1-1), and return fellowship for 6 months (RA 2523/2-1) 79.0 k€
- Postdoctoral research fellowship from the Technion, 3 months 7.5 k€
- Postdoctoral research fellowship from the Albert Einstein Institute, 3 months 6.3 k€

## Professional activities

- From 2017–2018, I was the **Scientific Coordinator** of “The Dark Universe TRR33”, which was a transregional collaborative research center between the Universities Bonn, Heidelberg and LMU Munich, as well as the Max Planck Institutes MPE and MPA Garching, funded by the German Research Foundation (DFG). My main tasks were:
  - **financial & scientific coordination** of the overall project; budget for the last 4 yrs was 12.5 M€
  - **organisation** of meetings, schools and international conferences (organiser of TRR33 Meeting in Heidelberg, May 2018; TRR33 winter school on cosmology, Passo del Tonale, Dec 2017)
  - measures for **gender equality** within the collaboration: active promotion and announcement of so-called women fellowships, as well as sponsored research trips for self-promotion of female scientists. During my tenure, more than 64% of the acquired funding for gender equality measures was invested, which is about twice as much in comparison to previous years.
- In support of students and junior scientists, I am a **co-organiser** of the Winter school on cosmology in Passo del Tonale (Italy): Dec 2018; Dec 2019; Dec 2020 (cancelled due to the pandemic situation); Dec 2021; Dec 2022; Dec 2023.
- I am an active **Referee** for the following journals and research organisations:
  - Ambizione research grants (Swiss National Science Foundation) since 2022
  - Astronomy & Astrophysics (A&A) since 2021
  - Classical and Quantum Gravity (CQG) since 2015
  - European Physical Journal C since 2020
  - Int. J. Mod. Phys. D since 2017
  - Journal of Cosmology and Astroparticle Physics (JCAP) since 2014
  - Mathematical Reviews since 2019
  - Monthly Notices of the Royal Astronomical Society (MNRAS) since 2013
  - MNRAS *Letters* since 2019
  - Physical Review D since 2022
  - Physical Review *Letters* since 2023
  - Physics of Fluids since 2023
  - Physics of Plasmas since 2023
  - Physics of the Dark Universe since 2017
  - Reviews of Modern Plasma Physics since 2022
  - Universe since 2019

- **Translated** a milestone paper of Hermann Hankel from German to English (see publication no. 24)
- Public **outreach**: “Stargazing Live” at the Portsmouth Historic Dockyard (March 2015; over 1100 registered people). My responsibility was to answer questions related to dark matter.
- **Co-organiser** of workshop on “[Inertial Confinement Fusion](#)”, 5th - 9th June 2023, Wolfgang Pauli Institute, Vienna
- **Co-organiser** of workshop on “[Cosmology in the Adriatic – From PT to AI](#)”, 14th - 20th July 2024, Split, Croatia
- **Programming & scientific computing**: C/C++, Fortran, Python, HTML, Mathematica, software to initialize and perform  $N$ -body simulations for cosmic structure formation
- **Committee member** of the PhD defence of Raquel Fazolo (10th Oct 2022, UFOP, Brazil)
- **Online presence**: researchgate, ORCID ID: 0000-0001-5947-9376, personal website: [www.irb.hr/eng/About-RBI/People/Cornelius-Stefan-Rampf](http://www.irb.hr/eng/About-RBI/People/Cornelius-Stefan-Rampf)

## Publications (43 published papers as of 29.2.2024, with 1530 citations and $h$ -index 23 on [Google Scholar](#))

- Published articles in Refereed Journals with high impact factors

43. F. List, O. Hahn & **C. Rampf**, *Fluid-limit Cosmological Simulations Starting from the Big Bang*, [[arXiv:2309.10865](#)], accepted for publication at *Phys. Rev. Letters*
42. **C. Rampf**, S. Saga, A. Taruya & S. Colombi, *Fast and accurate collapse-time predictions for collisionless matter*, *Phys. Rev. D* **108** (2023) 103513, [[arXiv:2303.12832](#)]
41. T. Montandon, J. Adamek, O. Hahn, J. Noreña, **C. Rampf**, C. Stahl & B. v. Tent, *Relativistic matter bispectrum of cosmic structures on the light cone*, *JCAP* **08** (2023) 043, [[arXiv:2212.06799](#)]
40. **C. Rampf** & O. Hahn, *Renormalization group and UV completion of cosmological perturbations: Gravitational collapse as a critical phenomenon*, *Phys. Rev. D* **107** (2023) 023515, [[arXiv:2211.02053](#)]
39. **C. Rampf**, U. Frisch & O. Hahn, *Eye of the Tyger: early-time resonances and singularities in the inviscid Burgers equation*, *Phys. Rev. Fluids* **7** (2022) 104610, [[arXiv:2207.12416](#)]
38. **C. Rampf**, S. O. Schobesberger & O. Hahn, *Analytical growth functions for cosmic structures in a  $\Lambda$ CDM Universe*, *MNRAS* **516** (2022) 2, 2840-2850, [[arXiv:2205.11347](#)]
37. **C. Rampf**, *Cosmological Vlasov-Poisson equations for dark matter: Recent developments and connections to selected plasma problems*, *Rev. Mod. Plasma Phys.* **5** (2021) 10 [**Open Access**], [[arXiv:2110.06265](#)]
36. **C. Rampf**, U. Frisch & O. Hahn, *Unveiling the singular dynamics in the cosmic large-scale structure*, *MNRAS Letters* **505** (2021) 1, L90-L94, [[arXiv:1912.00868](#)]
35. **C. Rampf** & O. Hahn, *Shell-crossing in a  $\Lambda$ CDM Universe*, *MNRAS Letters* **501** (2021) 1, L71-L75, [[arXiv:2010.12584](#)]
34. O. Hahn, **C. Rampf** & C. Uhlemann, *Higher-order initial conditions for mixed baryon-CDM simulations*, *MNRAS* **503** (2021) 1, 426-445, [[arXiv:2008.09124](#)]
33. **C. Rampf**, C. Uhlemann & O. Hahn, *Cosmological perturbations for two cold fluids in  $\Lambda$ CDM*, *MNRAS* **503** (2021) 1, 406-425, [[arXiv:2008.09123](#)]

32. M. Michaux, O. Hahn, **C. Rampf** & R. Angulo, *Accurate initial conditions for cosmological N-body simulations: Minimizing truncation and discreteness errors*, MNRAS **500** (2020) 1, 663-683, [arXiv:2008.09588]
31. C. Partmann, C. Fidler, **C. Rampf** & O. Hahn, *Fast simulations of cosmic large-scale structure with massive neutrinos*, JCAP **2009** (2020) 018, [arXiv:2003.07387]
30. C. Uhlemann, **C. Rampf**, M. Gosenca & O. Hahn, *Semiclassical path to cosmic large-scale structure*, Phys. Rev. D **99** (2019) 083524, [arXiv:1812.05633]
29. C. Fidler, N. Sujata & **C. Rampf**, *A Relativistic Interpretation of Bias in Newtonian Simulations*, JCAP **1902** (2019) 049, [arXiv:1810.10835]
28. **C. Rampf**, *Quasi-spherical collapse of matter in  $\Lambda$ CDM*, MNRAS **484** (2019) 5223-5235, [arXiv:1712.01878]
27. C. Fidler, A. Kleinjohann, T. Tram, **C. Rampf** & K. Koyama, *A new approach to cosmological structure formation with massive neutrinos*, JCAP **1901** (2019) 025, [arXiv:1807.03701]
26. C. Fidler, T. Tram, **C. Rampf**, R. Crittenden, K. Koyama & D. Wands, *General relativistic weak-field limit and Newtonian N-body simulations*, JCAP **1712** (2017) no.12, 022, [arXiv:1708.07769]
25. I. Oldengott, T. Tram, **C. Rampf** & Y. Y. Y. Wong, *Interacting neutrinos in cosmology: exact description and constraints*, JCAP **1711** (2017) no.11, 027, [arXiv:1706.02123]
24. B. Villone & **C. Rampf**, English translation of *Hermann Hankel's "On the general theory of motion of fluids"*, Europ. Phys. J. H **42** (2017) 557, [arXiv:1707.01883]
23. **C. Rampf** & U. Frisch, *Shell-crossing in quasi-one-dimensional flow*, MNRAS **471** (2017) 671, [arXiv:1705.08456]
22. C. Fidler, T. Tram, **C. Rampf**, R. Crittenden, K. Koyama & D. Wands, *Relativistic initial conditions for N-body simulations*, JCAP **1706** (2017) no.06, 043, [arXiv:1702.03221]
21. **C. Rampf**, E. Villa & L. Amendola, *Quasilinear observables in dark energy cosmologies*, Phys. Rev. D **95** (2017) no.12, 123516, [arXiv:1703.09228]
20. J. Adamek, J. Brandbyge, C. Fidler, S. Hannestad, **C. Rampf** & T. Tram, *The effect of early radiation in N-body simulations of cosmic structure formation*, MNRAS **470** (2017) 303-313, [arXiv:1703.08585]
19. J. Brandbyge, **C. Rampf**, T. Tram, F. Leclercq, C. Fidler & S. Hannestad, *Cosmological N-body simulations including radiation perturbations*, MNRAS Letters **466** (2017) L68-L72, [arXiv:1610.04236]
18. **C. Rampf**, E. Villa, D. Bertacca & M. Bruni, *Lagrangian theory for cosmic structure formation with vorticity: Newtonian and post-Friedmann approximations*, Phys. Rev. D **94** (2016) 083515, [arXiv:1607.05226]
17. C. Fidler, T. Tram, **C. Rampf**, R. Crittenden, K. Koyama & D. Wands, *Relativistic Interpretation of Newtonian Simulations for Cosmic Structure Formation*, JCAP **1609** (2016) no.09, 031, [arXiv:1606.05588]
16. F. Kuhnel, **C. Rampf** & M. Sandstad, *Effects of Critical Collapse on Primordial Black-Hole Mass Spectra*, Eur. Phys. J. C **76** (2016) no.2, 93, [arXiv:1512.00488]
15. A. Christopherson, J. C. Hidalgo, **C. Rampf** & K. A. Malik, *Second-order cosmological perturbation theory and initial conditions for N-body simulations*, Phys. Rev. D **93** (2016) 043539, [arXiv:1511.02220]
14. E. Villa & **C. Rampf**, *Relativistic perturbations in  $\Lambda$ CDM: Eulerian & Lagrangian approaches*, JCAP **1601** (2016) no.01, 030, [arXiv:1505.04782]

13. C. Fidler, **C. Rampf**, T. Tram, R. Crittenden, K. Koyama & D. Wands, *General relativistic corrections to N-body simulations and the Zel'dovich approximation*, Phys. Rev. D **92** (2015) 123517, [arXiv:1505.04756]
12. **C. Rampf**, B. Villone & U. Frisch, *How smooth are particle trajectories in a  $\Lambda$ CDM Universe?*, MNRAS **452** (2015) 1421, [arXiv:1504.00032]
11. I. M. Oldengott, **C. Rampf** & Y. Y. Y. Wong, *Boltzmann hierarchy for interacting neutrinos I: formalism*, JCAP **1504** (2015) 04, 016, [arXiv:1409.1577]
10. **C. Rampf**, G. Rigopoulos & W. Valkenburg, *A Relativistic view on large scale N-body simulations*, Class. Quant. Grav. **31** (2014) 234004, [arXiv:1409.6549]
9. **C. Rampf** & A. Wiegand, *Relativistic Lagrangian displacement field and tensor perturbations*, Phys. Rev. D **90** (2014) 123503, [arXiv:1409.2688]
8. F. Kuhnel & **C. Rampf**, *Astrophysical Bose-Einstein Condensates and Superradiance*, Phys. Rev. D **90** (2014) 10, 103526, [arXiv:1408.0790]
7. **C. Rampf**, *Frame dragging and Eulerian frames in General Relativity*, Phys. Rev. D **89** (2014) 063509, [arXiv:1307.1725]
6. **C. Rampf** & G. Rigopoulos, *Initial conditions for cold dark matter particles and General Relativity*, Phys. Rev. D **87** (2013) 12, [arXiv:1305.0010]
5. **C. Rampf** & G. Rigopoulos, *Zel'dovich approximation and General Relativity*, MNRAS Letters **430** (2013) L54, [arXiv:1210.5446]
4. **C. Rampf**, *The recursion relation in Lagrangian perturbation theory*, JCAP **1212** (2012) 004, [arXiv:1205.5274]
3. **C. Rampf** & Y. Y. Y. Wong, *Lagrangian perturbations and the matter bispectrum II: the resummed one-loop correction to the matter bispectrum*, JCAP **1206** (2012) 018, [arXiv:1203.4261]
2. **C. Rampf** & T. Buchert, *Lagrangian perturbations and the matter bispectrum I: fourth-order model for non-linear clustering*, JCAP **1206** (2012) 021, [arXiv:1203.4260]
1. J. Hamann, S. Hannestad, J. Lesgourgues, **C. Rampf** & Y. Y. Y. Wong, *Cosmological parameters from large scale structure - geometric versus shape information*, JCAP **1007** (2010) 022, [arXiv:1003.3999]

## Supervision of students

Nov 2021 – present	<b>Co-supervision</b> of PhD student Agata Wisłocka U Vienna, PhD expected 2025.
Mar 2023 – Aug 2023	<b>Supervision</b> of bachelor student Fabian Obernberger U Vienna, bachelor expected Sept 2023.
Sep 2021 – Sep 2023	<b>Co-supervision</b> of PhD student Sonja Ornella Schobesberger U Vienna.
Apr 2019 – Dec 2021	<b>Co-supervision</b> of PhD student Michaël Michaux Université de la Côte d'Azur and U Vienna (PhD Dec 2021).

## Teaching Experience

- Mar 2023 – Jul 2023 Graduate **seminar** on “Mathematical/Computational Astro/Quantum Physics” at U Vienna; co-organiser.
- Oct 2022 – Feb 2023 Graduate **lecture** “Cosmological Structures: Theory, Numerics & Statistics” at U Vienna. I developed & delivered this master course together with O. Hahn.
- Oct 2022 – Feb 2023 Graduate **seminar** on “Mathematical/Computational Astro/Quantum Physics” at U Vienna; co-organiser.
- Oct 2022 – Feb 2023 Graduate **seminar** on “Current topics in large-scale structure and cosmology” at U Vienna; co-organiser.
- Mar 2022 - Jul 2022 **Organiser and tutor** of two graduate courses “Applied Mathematics for teachers” at U Vienna (held in German).
- Mar 2022 - Jul 2022 Graduate **seminar** on “Mathematical/Computational Astro/Quantum Physics” at U Vienna; co-organiser.
- Mar 2022 - Jul 2022 Graduate **seminar** on “Current topics in large-scale structure and cosmology” at U Vienna; co-organiser.
- Oct 2021 – Feb 2022 **Organiser and tutor** of undergraduate course “Numerical Mathematics I” at U Vienna (held in German).
- Oct 2021 – Feb 2022 Graduate **seminar** on “Current topics in large-scale structure and cosmology” at U Vienna; co-organiser.
- Mar 2021 – Jul 2021 Graduate **lecture** “Cosmological Structures: Theory, Numerics & Statistics” at U Vienna. I developed & delivered this master course together with O. Hahn.
- Dec 2014 – Dec 2014 Delivered 3 **lectures** ( $\Sigma$  6 hr) for a PhD course on General Relativity at ICG.
- Dec 2012 – Dec 2012 Delivered 2 **lectures** ( $\Sigma$  3 hr) for a master course in Cosmology at RWTH.
- Apr 2011 – Jul 2011 **Organiser and tutor** of master course “Cosmic microwave background and large scale structure” at RWTH Aachen.
- Sep 2010 – Feb 2011 **Organiser and tutor** of master course “General relativity & cosmology” at RWTH Aachen.
- Apr 2010 – Jul 2010 **Organiser and tutor** of master course “Cosmic microwave background and large scale structure” at RWTH Aachen.
- Apr 2009 – Jul 2009 **Teaching assistant** of graduate course “theoretical quantum mechanics” at the KIT (held in German).
- Sep 2008 – Feb 2009 **Teaching assistant** of undergraduate course “Theoretical electrodynamics” at the KIT (held in German).
- Apr 2008 – Jul 2008 **Teaching assistant** of undergraduate course “Analytical mechanics” at the KIT (held in German).



## Seminars and talks

55. Seminar at Laboratoire Univers et Particules de Montpellier, Montpellier **Nov 14 2023**  
*Cosmic large-scale structure and shell-crossings*
54. Talk at COSMO23, Madrid **Sep 12 2023**  
*Accurate shell-crossing predictions from perturbation theory*
53. Seminar at Sydney Consortium for Particle Physics and Cosmology, Sydney **Aug 21 2023**  
*Cosmic large-scale structure and shell-crossings*
52. Seminar at CIRM workshop on plasmas and self-gravitating systems, Marseille **July 25 2023**  
*Cosmic large-scale structure and shell-crossings*
51. Seminar at Ruder Boskovic Institute, Zagreb **May 31 2023**  
*Cosmic large-scale structure and shell-crossings*
50. Cosmology Seminar at MPA, Garching **Apr 25 2023**  
*Critical phenomena and cosmological perturbations at the extreme*
49. Seminar at physics department, RWTH Aachen **Mar 15 2023**  
*Critical phenomena and cosmological perturbations at the extreme*
48. Seminar at AIfA, Bonn **Mar 14 2023**  
*Critical phenomena and cosmological perturbations at the extreme*
47. Lecture at Turbulence Meeting, ICTS/Tata Institute, Bangalore (e-seminar, [youtube](#)) **Jan 25 2023**  
*Early-time resonances and singularities in the inviscid Burgers equation*
46. Seminar at 13th Plasma Kinetics Working Meeting, Vienna **Aug 2 2022**  
*Early-time resonances and singularities in the inviscid Burgers equation*
45. Plenary seminar at Festival de Théorie, Aix-en-Provence **Jul 11 2022**  
*Cosmological Vlasov-Poisson equations for dark matter:  
Recent developments and connections to selected plasma problems*
44. London relativity and cosmology seminar, Queen Mary University (e-seminar, [youtube](#)) **Feb 2 2022**  
*Cosmological Vlasov-Poisson equations for dark matter:  
Recent developments and connections to selected plasma problems*
43. Cosmology and particle physics seminar at ITP, University of Heidelberg (e-seminar) **Nov 9 2021**  
*Cosmic large-scale structure: theory meets numerics*
42. Plenary talk at 4th Asia Pacific Conference on Plasma Physics (e-conference) **Oct 29 2020**  
*Vlasov-Poisson in Cosmology*
41. Talk at Wolfgang Pauli Institute, Vienna **Feb 21 2020**  
*Singularities in cosmological Vlasov-Poisson and quantum picture*
40. Physics seminar at University of New South Wales, Sydney **Jan 15 2020**  
*Cosmic large-scale structure: theory meets numerics*
39. Seminar at TH Cosmo Coffee, CERN **Sep 25 2019**  
*Unveiling the singular dynamics of the cosmic large-scale structure*
38. Talk at COSMO19, Aachen, Germany **Sep 2 2019**  
*Weak singularities in large-scale structure: identification and workaround*
37. Cosmology and particle physics seminar, University of Geneva **Jun 21 2019**  
*Weak singularities in large-scale structure: identification and workaround*
36. BCCP seminar, University of California, Berkeley **Jan 22 2019**  
*Weak singularities in large-scale structure: identification and workaround*
35. Talk at HEP group meeting, Columbia University, New York **Jan 17 2019**  
*Weak singularities in large-scale structure: identification and workaround*
34. CCPP Astro Talk, New York University, New York **Jan 15 2019**

- Weak singularities in large-scale structure: identification and workaround*
33. IAS/Princeton Cosmology Lunch, Princeton **Jan 14 2019**  
*Weak singularities in large-scale structure: identification and workaround*
  32. Talk at workshop “The Nonlinear Universe,” Šmartno, Slovenia **Jul 16 2018**  
*Shell-crossing in quasi-one-dimensional flow*
  31. Talk at “Schrödinger workshop,” Wolfgang Pauli Institut, Vienna **May 22 2018**  
*Shell-crossing in quasi-one-dimensional flow*
  30. Talk at “13. Kosmologietag,” Bielefeld University, Germany **May 3 2018**  
*Shell-crossing in quasi-one-dimensional flow*
  29. Talk at “Gravity & Cosmology workshop,” Yukawa Institute, Kyoto University **Feb 15 2018**  
*Shell-crossing in quasi-one-dimensional flow*
  28. Talk at “Vlasov-Poisson workshop,” Wolfgang Pauli Institut, Vienna **Dec 18 2017**  
*Shell-crossing in quasi-one-dimensional flow*
  27. Talk at “Euclid Theory Meeting,” Heidelberg **May 2 2017**  
*N-body simulations with radiation perturbations*
  26. Talk at “Workshop on GR effects in galaxy surveys,” Cape Town **Feb 14 2017**  
*N-body gauge & N-body simulations with radiation perturbations*
  25. Astrophysics seminar at physics department, Technion, Haifa **Feb 1 2017**  
*Cosmological N-body simulations including radiation perturbations*
  24. Cosmology seminar at physics department, Bielefeld University **Jun 7 2016**  
*Relativistic Interpretation of Newtonian Simulations for Cosmic Structure Formation*
  23. Cosmology and particle physics seminar at ITP, University of Heidelberg **Apr 20 2016**  
*Cosmological large-scale flows in the light of Newton theory and General Relativity*
  22. Theory seminar at CP3, Université catholique de Louvain, Belgium **Nov 18 2015**  
*Cosmological large-scale flows in the light of Newton theory and General Relativity*
  21. Cosmology seminar at University of Sussex, UK **Oct 19 2015**  
*Cosmological large-scale flows in the light of Newton theory and General Relativity*
  20. Applied mathematics seminar at University of Newcastle, UK **Oct 9 2015**  
*Cosmological large-scale flows in the light of Newton theory and General Relativity*
  19. Gravity seminar at University of Southampton, UK **Oct 1 2015**  
*Cosmological large-scale flows in the light of Newtonian theory and General Relativity*
  18. Talk (parallel session) at COSMO 2015, Warsaw **Sep 11 2015**  
*A convergent perturbation theory for Newtonian cosmological structure formation*
  17. Relativity & cosmology seminar at Queen Mary, University of London **Mar 4 2015**  
*Lagrangian and Eulerian coordinate approaches for cosmological large-scale flows*
  16. Cosmology & astroparticle seminar at University of Helsinki **Nov 5 2014**  
*Lagrangian and Eulerian coordinate approaches for cosmological large-scale flows*
  15. Cosmology seminar at MPA Garching **Feb 11 2014**  
*Relativistic constraints for (Newtonian) cosmological simulations*
  14. Colloquium at Oskar Klein Centre, University of Stockholm **Nov 12 2013**  
*Eulerian frames in General Relativity*
  13. Cosmology tunch seminar at ITP, Heidelberg University **Oct 30 2013**  
*The observer in relativistic cosmological structure formation*
  12. Sifa seminar at University of Sydney **Oct 18 2013**  
*The observer in relativistic cosmological structure formation*
  11. Physics seminar at University of New South Wales, Sydney **Sep 19 2013**  
*The observer in relativistic cosmological structure formation*



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|---|--------------------|
| 10. Relativity & cosmology seminar at Queen Mary, University of London<br><i>Relativistic initial conditions for cosmological structure formation</i> | <b>Jul 23 2013</b> |
| 9. Theory seminar at AEI, Max Planck Institute Potsdam-Golm<br><i>Relativistic initial conditions for cosmological structure formation</i>            | <b>Jul 15 2013</b> |
| 8. Theoretical cosmology seminar at ICG, University of Portsmouth<br><i>Relativistic initial conditions for cosmological structure formation</i>      | <b>Jul 4 2013</b>  |
| 7. Cosmology seminar at LMU Munich<br><i>Zel'dovich approximation and general relativity</i>  | <b>Nov 13 2012</b> |
| 6. Talk (parallel session) at COSMO 2012 in Beijing<br><i>A gradient expansion for non-linear cosmology</i>   | <b>Sep 10 2012</b> |
| 5. Talk at CERN workshop "Theoretical methods for non-linear cosmology"<br><i>Gradient expansion &amp; Lagrangian perturbation theory</i>             | <b>Sep 5 2012</b>  |
| 4. Talk at "Graduiertenkolleg RWTH Aachen" in Vaals, Netherlands<br><i>The gradient expansion: a relativistic framework for non-linear cosmology</i>  | <b>Aug 31 2012</b> |
| 3. Talk (parallel session) at DESY theory workshop in Hamburg<br><i>The resummed matter bispectrum</i>  | <b>Sep 29 2011</b> |
| 2. Talk at "Graduiertenkolleg RWTH Aachen" in Bad Honnef, Germany<br><i>The matter bispectrum</i>   | <b>Sep 5 2011</b>  |
| 1. Talk at "6. Kosmologietag", Bielefeld University, Germany<br><i>The matter bispectrum in Lagrangian perturbation theory</i>                        | <b>May 5 2011</b>  |

## Referees

Prof. Dr. Luca Amendola  
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