Refereed Publications


“Mapping the relativistic electron gas temperature across the sky”, MNRAS, 494, 5734 (2020)

“Relativistic SZ temperature scaling relations of groups and clusters derived from the BAHAMAS and MACSIS simulations”, MNRAS, 493, 3274, (2020)

“Updated fundamental constant constraints from Planck 2018 data and possible relations to the Hubble tension”, MNRAS, 493, 3255, (2020)


“Improved calculations of electron-ion bremsstrahlung Gaunt factors for astrophysical applications”, MNRAS, 492, 177 (2020)

“The synergy between CMB spectral distortions and anisotropies”, JCAP, 2, 26 (2020)

100. A. Sarkar, Jens Chluba & E. Lee (arXiv:1905.00868)  


“Spectral Distortions of the CMB as a Probe of Inflation, Recombination, Structure Formation and Particle Physics”, BAAS, 51, 184 (2019)

“Improved CMB anisotropy constraints on primordial magnetic fields from the post-recombination ionization history”, MNRAS, 484, 185 (2019)


94. P. Ade et al. (arXiv:1808.07445)  
“The Simons Observatory: science goals and forecasts”,  
*JCAP*, 2, 56 (2019)

“Magnetic heating across the cosmological recombination era: results from 3D MHD simulations”,  

“Extracting foreground-obscured $\mu$-distortion anisotropies to constrain primordial non-Gaussianity”,  

“Planck’s view on the spectrum of the Sunyaev-Zeldovich effect”,  

90. CORE Collaboration (arXiv:1704.04501)  
“Exploring Cosmic Origins with CORE: B-mode Component Separation”,  
*JCAP*, 4, 023 (2018)

89. CORE Collaboration (arXiv:1707.04224)  
“Exploring Cosmic Origins with CORE: mitigation of systematic effects”,  
*JCAP*, 4, 022 (2018)

88. CORE Collaboration (arXiv:1704.05764)  
“Exploring Cosmic Origins with CORE: effects of observer peculiar motion”,  
*JCAP*, 4, 021 (2018)

87. CORE Collaboration (arXiv:1609.07263)  
“Exploring cosmic origins with CORE: Extragalactic sources in cosmic microwave background maps”,  
*JCAP*, 4, 020 (2018)

86. CORE Collaboration (arXiv:1703.10456)  
“Exploring Cosmic Origins with CORE: Cluster Science”,  
*JCAP*, 4, 019 (2018)

85. CORE Collaboration (arXiv:1707.02259)  
“Exploring Cosmic Origins with CORE: gravitational lensing of the CMB”,  
*JCAP*, 4, 018 (2018)

84. CORE Collaboration (arXiv:1612.00021)  
“Exploring Cosmic Origins with CORE: Cosmological Parameters”,  
*JCAP*, 4, 017 (2018)

83. CORE Collaboration (arXiv:1612.08270)  
“Exploring Cosmic Origins with CORE: Inflation”,  
*JCAP*, 4, 016 (2018)

82. CORE Collaboration (arXiv:1705.02170)  
“Exploring cosmic origins with CORE: The instrument’,  
*JCAP*, 4, 015 (2018)

81. CORE Collaboration (arXiv:1706.04516)  
“Exploring cosmic origins with CORE: Survey requirements and mission design”,  
*JCAP*, 4, 014 (2018)

80. Ludovico Capparelli, Eleonora Di Valentino, Alessandro Melchiorri & Jens Chluba (arXiv:1712.06965)  
“Impact of theoretical assumptions in the determination of the neutrino effective number from future CMB measurements”,  
*PRD*, 97, 063519, (2018)

“New constraints on time-dependent variations of fundamental constants using Planck data”,  

“Rethinking CMB foregrounds: systematic extension of foreground parametrizations”,  


   “Constraints on Dark Matter Interactions with Standard Model Particles from Cosmic Microwave Background Spectral Distortions”, *PRL*, 115, 071304, (2015)


58. Razieh Emami, Emanuela Dimastrogiovanni, Jens Chluba & Marc Kamionkowski (arXiv:1504.00675)
   “Probing the scale dependence of non-Gaussianity with spectral distortions of the cosmic microwave background”, *PRD*, 91, 123531, (2015)


54. Donghui Jeong, Josef Pradler, Jens Chluba, & Marc Kamionkowski (arXiv:1403.3697)

   “Linking the BICEP2 result and the hemispherical power asymmetry through spatial variation of r”, *MNRAS*, 442, 670, (2014)

52. Liang Dai & Jens Chluba (arXiv:1403.6117)
   “New operator approach to the CMB aberration kernels in harmonic space”, *PRD*, 89, 123504, (2014)

51. Joseph Silk & Jens Chluba

   “Refined approximations for the distortion visibility function and mu-type spectral distortions”, *MNRAS*, 440, 2544, (2014)


   “The effects of aberration on partial-sky measurements of the cosmic microwave background temperature power spectrum”, *PRD*, 89, 023003, (2014)


44. Jens Chluba (arXiv:1304.6121)
   “CMB spectral distortions from small-scale isocurvature fluctuations”,  

42. Jens Chluba (arXiv:1304.6120)  
   “Green’s function of the cosmological thermalization problem”,  

   “Non-thermal photons and H₂ formation in the early Universe”,  

   “The pesky power asymmetry”,  

39. Calabrese et al. (arXiv:1302.1841)  
   “Cosmological parameters from pre-planck cosmic microwave background measurements”,  

   “Constraints on perturbations to the recombination history from measurements of the CMB damping tail”,  

   “Sunyaev-Zeldovich signal processing and temperature-velocity moment method for individual clusters”,  

36. Jens Chluba, Daisuke Nagai, Sergey Sazonov, & Kaylea Nelson  
   “A fast and accurate method for computing the Sunyaev-Zeldovich signal of hot galaxy clusters”,  

35. Jens Chluba, Adrienne Erickcek, & Ido Ben-Dayan  
   “Probing the inflaton: Small-scale power spectrum constraints from measurements of the CMB energy spectrum”,  

34. Jens Chluba, Rishi Khatri & Rashid Sunyaev  
   “CMB at 2 × 2 order: The dissipation of primordial acoustic waves and the observable part of the associated energy release”,  

33. Jens Chluba, Jeffrey Fung & Eric R. Switzer  
   “Radiative transfer effects during primordial helium recombination”,  

32. Rishi Khatri, Rashid Sunyaev & Jens Chluba  
   “Mixing of blackbodies: entropy production and dissipation of sound waves in the early Universe”,  

31. Marzieh Farhang, Dick Bond & Jens Chluba  
   “Semi-blind Eigen-analyses of Recombination Histories Using CMB Data”,  

30. Rishi Khatri, Rashid Sunyaev & Jens Chluba  
   “Does Bose-Einstein condensation of CMB photons cancel μ-distortions created by dissipation of sound waves in the early Universe?”,  

29. Jens Chluba & Rashid Sunyaev  
   “The evolution of CMB spectral distortions in the early Universe”  

28. Gert Hütsi, Jens Chluba, Andi Hektor & Martti Raidal  
   “WMAP7 and future CMB constraints on annihilating dark matter: implications on GeV-scale WIMPs”,  

27. Jens Chluba  
   “Fast and accurate computation of the aberration kernel for the CMB sky”  
   *MNRAS*, 415, 3227-3236, (2011)
26. Richard J. Shaw & Jens Chluba
   “Precise cosmological parameter estimation using COSMOREC”

25. Jens Chluba & Rajat M. Thomas
   “Towards a complete treatment of the cosmological recombination problem”

24. Jens Chluba, Geoff Vasil & Jonathan Dursi

23. Jose Alberto Rubino-Martin, Jens Chluba, Chad Fendt & Benjamin Wandelt

22. Jens Chluba & Rashid Sunyaev

21. Jens Chluba & Rashid Sunyaev

20. Jens Chluba

19. Jens Chluba & Rashid Sunyaev
   “Cosmological hydrogen recombination: influence of resonance and electron scattering”

   “Signals from the epoch of cosmological recombination (Karl Schwarzschild Award Lecture 2008)”, Astronomische Nachrichten, 330, 657, (2009)

17. Jens Chluba & Rashid Sunyaev
   “Pre-recombinational energy release and narrow features in the CMB spectrum”

16. Chad Fendt, Jens Chluba, Jose Alberto Rubino-Martin & Benjamin Wandelt

15. Jens Chluba & Rashid Sunyaev
   “Time-dependent corrections to the Lyα escape probability during cosmological recombination”

14. Jens Chluba & Rashid Sunyaev

13. Jose Alberto Rubino-Martin, Jens Chluba & Rashid Sunyaev

12. Jens Chluba & Rashid Sunyaev
   “Two-photon transitions in hydrogen and cosmological recombination”

11. Jens Chluba & Rashid Sunyaev
   “Is there a need and another way to measure the Cosmic Microwave Background temperature more accurately?”, Astronomy & Astrophysics, 478, L27-L30, (2008)

10. Jens Chluba & Rashid Sunyaev
   “Cosmological hydrogen recombination: Lyll line feedback and continuum escape”
9. Jens Chluba, Sergey Sazonov & Rashid Sunyaev
   "Double Compton emission in an isotropic, mildly relativistic thermal plasma"

8. Jens Chluba, Jose Alberto Rubino-Martín & Rashid Sunyaev
   "Cosmological hydrogen recombination: populations of the high level sub-states"

7. Jens Chluba & Rashid Sunyaev
   "Free-bound emission from cosmological hydrogen recombination"

6. Jose Alberto Rubino-Martin, Jens Chluba & Rashid Sunyaev

5. Joern Dunkel, Jens Chluba & Rashid Sunyaev
   "Accretion of helium and metal-rich gas onto neutron stars and black holes at high luminosities"

4. Jens Chluba & Rashid Sunyaev
   "Induced two-photon decay of the 2s level and the rate of cosmological hydrogen recombination",

3. Jens Chluba, Gert Hütsi & Rashid Sunyaev
   "Clusters of galaxies in the microwave band: influence of the motion of the Solar System"

2. Jens Chluba & Rashid Sunyaev
   "Superposition of blackbodies and the dipole anisotropy: A possibility to calibrate CMB experiments",

1. Jens Chluba & Karl Mannheim
   "Kinetic Sunyaev-Zeldovich effect from galaxy cluster rotation"

Submitted Papers

  "Peeling off foregrounds with the constrained moment ILC method to unveil primordial CMB B-modes",
  submitted

  "Sensitivity forecasts for the cosmological recombination radiation in the presence of foregrounds",
  submitted

  "Combining ILC and moment expansion techniques for extracting average-sky signals and CMB anisotropies",
  submitted

  "Thermalization of large energy release in the early Universe",
  submitted

  "The double Compton process in astrophysical plasmas",
  submitted

- Planck Collaboration (arXiv:1807.06209)
  "Planck 2018 results. VI. Cosmological parameters",
  submitted
Contributed Book Chapters

   “Future Steps in Cosmology using Spectral Distortions of the Cosmic Microwave Background”, Lecture notes, Varenna International School of Physics “Enrico Fermi”, in press

1. Simon Glover, Jens Chluba, Steve Furlanetto, Jonathan Prichard, Daniel Savin

Contributed Publications

7. Jens Chluba
   “Future Steps in CMB Cosmology”, Proceedings of the LIIIrd RENCONTRES DE MORIOND

5. Alan Kogut, Jens Chluba, Dale Fixsen, Stephan Meyer, David Spergel,

   “Science with CMB spectral distortions”, Proceedings of the XLIXth RENCONTRES DE MORIOND

3. Rashid Sunyaev & Jens Chluba

2. Rashid Sunyaev & Jens Chluba
   “The Richness and Beauty of the Physics of Cosmological Recombination”

1. Jens Chluba, Jose Alberto Rubino-Martin & Rashid Sunyaev
   “The Cosmological Hydrogen Recombination Spectrum”
   Proceedings of Bernard’s Cosmic Stories: from primordial fluctuations to the birth of stars and galaxies, June 26-30, 2006. UIMP, VALENCIA, SPAIN. Meeting abstracts

Science White Papers

- Contributor to numerous White Papers for the NASA Decadal survey 2020
- Main author and coordinator of the ESA Voyage 2050 White Papers

Popular Science Articles

3. Contributed to the Article “Spectral Sensation” by George Musser
   News Scan Cosmology
   Scientific American, May 2009

2. Jens Chluba & Rashid Sunyaev
   “What can the cosmological recombination radiation tell us about the thermal history of the Universe?”
   MPA Research Highlight, June 2008

1. Rashid Sunyaev & Jens Chluba
   “Cosmological hydrogen recombination lines from redshifts $z \sim 1400$”
   MPA Research Highlight, July 2007
List of Recent Invited and Contributed Talks

- Invited (remote) talk, Fourth Zeldovich Meeting, Sept 2020, Minsk, Belarus
- Contributed talk, B-mode from space meeting, Dec 2019, Munich, Germany
- Contributed talk, CoSyne Workshop, Dec 2019, Paris, France
- Contributed talk, Millimetron Workshop, Sept 2019, Paris, France
- Invited talk, Sesto Cosmology Workshop, Feb 2019, Sexten, Italy
- Invited talk, ICTS Workshop ‘Cosmology – The Next Decade’, Jan 2019, Bangalore, India
- Invited talk, Rencontres de Vietnam, July 2018, Quy Nhon, Vietnam
- Invited talk, PACTS, June 2018, Tallin, Estonia
- Invited talk, Rencontres de Moriond, March 2018, La Thuile, Italy
- Invited talk, Workshop ‘The Reionization History of the Univ.’, March 2018, Bielefeld, Germany
- Invited talk, Workshop ‘CMB in Germany’, Jan 2018, Munich, Germany
- Invited talk, DESY Theory Workshop 2017, Sept 2017, Hamburg, Germany
- Invited talk, XI\textsuperscript{th} International Conference, PPC2017, May 2017, Texas, USA
- Invited talk, PONT meeting, April 2017, Avignon, France
- Invited talk, UTQuest Workshop Kyoto, Dec 2016, Kyoto, Japan
- Invited talk, XII Reunion Cientifica de la SE, July 2016, Bilbao, Spain
- Contributed talks, CMB Spectral Distortions workshop, July 2016, Bangalore, India
- Invited talk, Dark Ages and White Nights, June 2016, St. Petersburg, Russia
- Invited talks, CMB/LSS/21cm Workshop, June 2016, Madrid, Spain
- Invited talk, Schwartz/Reisman ITP workshop, Weizmann Institute, May 2016, Tel Aviv, Israel
- Contributed talk, CORE meeting, May 2016, Geneva, Switzerland

List of Recent Seminars and Colloquia

- (Virtual) Colloquium, McGill University, Oct 2020, Canada
- (Virtual) Astro Colloquium, Observatory of Edinburgh, May 2020, UK
- Cosmology Seminar, University College London, Oct 2019, London, UK
- Seminar, University of Bochum, June 2019, Bochum, Germany
- Cosmology Seminar, University of Nottingham, June 2019, Nottingham, UK
- Cosmology Seminar, University of Bologna, May 2018, Bologna, Italy
- Astrophysics Seminar, Warwick University, May 2018, Coventry, UK
- Cosmology Seminar, LMU, Nov 2017, Munich, Germany
- Cosmology Seminar, Nov 2017, Marseille, France
- Cosmology Seminar, Sussex University, Oct 2017, Brighton, UK
- Cosmology Seminar, April 2017, Helsinki, Finland
- Cosmology Seminar, Feb 2017, Oslo, Norway
- OKC Colloquium, Nov 2016, Stockholm, Sweden
- HEPHY Colloquium, Oct 2016, Vienna, Austria
- MPA High Energy Seminar, Sept 2016, Garching, Germany
- PI Cosmology Seminar, May 2016, Waterloo, Canada
- Astrophysics Colloquium, May 2016, Hamburg, Germany
- IAS Seminar, April 2016, Princeton, USA