

Curriculum Vitæ

Julien Lesgourgues

Born on the 08.07.1972, Swiss and French nationalities, married, three children

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Positions and degrees

- 2015- : Permanent **full professor position** (W3) at RWTH Aachen University
(Chair of Astroparticle Physics and Cosmology)
- 2014 : **Habilitation** in Theoretical Physics, University of Savoie, France
Jury: Profs. P. Binétruy, F. Bouchet, S. Davidson, R. Durrer, P. Salati, M. Shaposhnikov
- 2008-2015 : Fixed-term **Junior Staff joint position** in the CERN Theory Division (Geneva) and
at the “Institut de Physique Théorique” (EPFL, Lausanne).
- 2000-2008: Permanent **CNRS researcher position** : Chargé de Recherche at LAPTH
(Annecy-Le-Vieux, France). Position resigned.
- 2001-2003 : **CERN Fellow** in the CERN Theory Division (CERN, Geneva).
- 1998-2000 : **Post-doctoral fellow** at SISSA (Trieste, Italie).
European Commission fellowship (“TMR network: Beyond the Standard Model”).
- 1995-1998 : **PhD cursus in the University of Tours**
PhD obtained on the 15 May 1998 with “félicitations du jury”
Title of PhD thesis : “Inflationary models and CMB anisotropies”
Supervisor : Pr. D. Polarski Referees : Prs. P. Binétruy, R. Schaeffer
Jury : Prs. B. Boisseau, N. Deruelle, R. Hakim, J.-L. Puget, A. Starobinsky
- 1994-1995 : **Master in Theoretical Physics**
(directed by E. Brézin, Ecole Normale Supérieure, Paris)
- 1991-1994 : **Ingénieur of the Ecole Polytechnique**
(Ecole Polytechnique, Palaiseau, Paris)

Scientific awards

- 2018: co-holder of the Gruber Cosmology Prize, awarded to the Planck Satellite team.
- 2018: my PhD student V. Poulin (jointly supervised together with Pasquale Serpico) got the prize of the best Physics PhD of the year at University of Grenoble, and the same prize at the French national level from the Société Française de Physique.
- 2017: RWTH Physik Lehrpreis: prize of the best physics teacher of the year at Aachen University.
- 2015: my PhD student B. Audren got the prize of the best Physics PhD of the year at EPFL.
- 2006 : “Médaille de Bronze” in Theoretical Physics offered by CNRS.
- 2016-2017: two individual research projects funded by the german science foundation (DFG).
- 2011-2015: three individual research projects funded by the swiss science foundation (SNF).
- 2003-2008: five individual research projects funded by CNRS.

Participation to observational collaborations

- 2009- : HFI Core Team Member of the Planck Satellite collaboration.
- 2009- : member of the Euclid Satellite collaboration (within the Theory Group and IST).

Main scientific and administrative responsibilities

- 2010-2014 : president of Theoretical Physics department of doctoral school of “Suisse Romande”
- 2006-2010 : coordinator of the Annecy node of the EU TMR network “UniversetNet”
- supervisor of PhD students (Wessel Valkenburg, PhD obtained in July 2009, Benjamin Audren, PhD obtained in 2014, Vivian Poulin, PhD obtained in 2017, Thejs Brinckmann, PhD expected in 2018, Deanna Hooper, PhD expected in 2019, Nils Schöneberg, PhD expected in 2021, partial supervision of other students like Mario Acero, Thomas Tram, Maria Beltran, Laurence Perotto, Alexandre Arbey, ...), Master students (about 20), Bachelor students (about 18).
- member of steering and administration committees (e.g. of the “Institut Lagrange” in Paris, formerly of the Science Faculty of the University of Savoie,...)

Teaching activities

- 2016- : every year: “The Perturbed Universe”, specialised course of the Master of Theoretical Physics, RWTH Aachen University (45 hours)
- 2015- : every year: “General Relativity and Cosmology”, module of the Master of Theoretical Physics, RWTH Aachen University (45 hours)
- 2015 : “Cosmology” module of the Master of Theoretical Physics, University of Bern (28 hours)
- 2009-2013 : every two years: “Advanced Cosmology” module of the Doctoral School of Physics, EPFL Lausanne (28+14 hours)
- 2007-2011 : every year: “Cosmology” module of the Master of Theoretical Physics, Ecole Normale Supérieure de Lyon (24 hours)
- 2009 : course on “Dark Matter and Dark Energy”, Doctoral school of Suisse Romande, EPFL
- 2006 : course on “Introduction to Inflation”, Doctoral school of Suisse Romande, EPFL
- 2002-2006 : courses of “Introduction to Cosmology” given in various occasions at the doctoral level: CERN Student Summer School in 2002, 2003, 2004, 2005, doctoral school of the University of Savoie in 2004, 2005, 2006.
- 2000-2015 : various courses for students and researchers in international summer schools; e.g: “Cosmological Perturbations” at the TASI summer school, University of Colorado, June 2012; similar courses at ICTP Trieste, CERN, Les Houches, Cargèse, ICTP-SAIFR São Paolo, etc.
- 1995-1998 : teaching assistant at the University of Tours: graduate courses in Classical and Quantum Mechanics.

Organization of scientific events

- organization of the workshop “CosmoTools18”, RWTH Aachen University, 2018 (Chair)
- organization of the conference “Fundamental Physics in the Cosmos”, DESY Theory Workshop, Hamburg, 2017 (Chair)

- organization of a workshop on “Cosmology after Planck: what is next?”, Les Houches, 2016 (co-Chair with François Bouchet)
- organization of a workshop on “Implications of Planck results for theoretical cosmology”, CERN, 2013 (Chair)
- organization of a workshop on “Theoretical methods for non-linear cosmology”, CERN, 2011 (co-Chair with Toni Riotto)
- organization of the “PPC 2011” conference at CERN, 2011 (Chair)
- organization of the “COSMO’09” conference at CERN, 2009 (co-Chair with Toni Riotto)
- organization of the “Particle Cosmology Institute” at CERN, 2009 (Chair)
- organization of the “Dark matter at small scales” workshop, APC (Paris), February 2008.
- organization of the “Astroparticle and Cosmology” workshop, Galileo Institute, Florence, from September to November 2006.
- organization of the workshops “Modern Cosmology: Inflation, CMB and Large scale Structure”, Benasque (Spain), August 2006 and August 2008.
- organization of the “Cosmology and Astro-Particle Physics (CAPP 2003)” conference, CERN, 2003.
- organization of the “Ekpyrotic Universe” workshop, LAPTH, Annecy, 2003.
- creation in 2001 and organization till 2007 of the “Journées des Lacs Alpains de Cosmologie” (JLAC), a one-day meeting gathering twice a year all cosmologists from Annecy, CERN, Geneva and Lausanne.
- creation in 2001 and organization till 2015 of the “Cosmo Coffee”, the CERN discussion session on Cosmology, held every week and still going on.

Public outreach

- public outreach conferences in Aachen on the CMB (2015) and Gravity Waves (2017)
- TED talk at TEDxCERN 2014
- many conferences on cosmology for non-scientists or high-school teachers, at CERN and in France.
- few articles for science divulgation magazines (“La Recherche”, “Physics”).

Language skills

Native French. Fluent English and Italian. Advanced Spanish. Basic German (B1).

Hobbies

Classical music, arts, piano playing, mountaineering and gastronomy.

Publications

According to the SLAC Inspire-HEP database, I currently authored 195 papers including 172 published papers, with 36'00 citations and an h-factor of 77 (without the papers of the Planck satellite collaboration: 10'000 citations and an h-factor of 53).

Since some of my collaborators and myself are close to the particle physics community, in many of my papers, the authors are listed in alphabetic order, according to the particle physics usage. In some others, the order reflects the astrophysics usage.

1. **“Review of Particle Physics”**
M. Tanabashi *et al.* [ParticleDataGroup].
DOI:10.1103/PhysRevD.98.030001
Phys. Rev. D **98**, no. 3, 030001 (2018).
2. **“The promising future of a robust cosmological neutrino mass measurement”**
T. Brinckmann, D. C. Hooper, M. Archidiacono, J. Lesgourgues and T. Sprenger.
arXiv:1808.05955 [astro-ph.CO]
TTK-18-29
3. **“Beyond the traditional Line-of-Sight approach of cosmological angular statistics”**
N. Schneberg, M. Simonovi?, J. Lesgourgues and M. Zaldarriaga.
arXiv:1807.09540 [astro-ph.CO]
TTK-18-28
4. **“Planck 2018 results. VI. Cosmological parameters”**
N. Aghanim *et al.* [Planck Collaboration].
arXiv:1807.06209 [astro-ph.CO]
5. **“Planck 2018 results. X. Constraints on inflation”**
Y. Akrami *et al.* [Planck Collaboration].
arXiv:1807.06211 [astro-ph.CO]
6. **“Planck 2018 results. I. Overview and the cosmological legacy of Planck”**
Y. Akrami *et al.* [Planck Collaboration].
arXiv:1807.06205 [astro-ph.CO]
7. **“Bias due to neutrinos must not uncorrect'd go”**
S. Vagnozzi, T. Brinckmann, M. Archidiacono, K. Freese, M. Gerbino, J. Lesgourgues and T. Sprenger.
arXiv:1807.04672 [astro-ph.CO]
DOI:10.1088/1475-7516/2018/09/001
JCAP **1809**, no. 09, 001 (2018)
LCTP-18-18, NORDITA-2018-053, TTK-18-24
8. **“MontePython 3: boosted MCMC sampler and other features”**
T. Brinckmann and J. Lesgourgues.
arXiv:1804.07261 [astro-ph.CO]
TTK-18-15
9. **“Cosmology in the era of Euclid and the Square Kilometre Array”**
T. Sprenger, M. Archidiacono, T. Brinckmann, S. Clesse and J. Lesgourgues.
arXiv:1801.08331 [astro-ph.CO]
TTK-18-04, CP3-18-06
10. **“Exotic energy injection with ExoCLASS: Application to the Higgs portal model and evaporating black holes”**
P. Stecker, M. Krmer, J. Lesgourgues and V. Poulin.
arXiv:1801.01871 [astro-ph.CO]
DOI:10.1088/1475-7516/2018/03/018
JCAP **1803**, no. 03, 018 (2018)

11. **“Updated tomographic analysis of the integrated Sachs-Wolfe effect and implications for dark energy”**
 B. Stlizer, A. Cuoco, J. Lesgourgues and M. Bilicki.
 arXiv:1710.03238 [astro-ph.CO]
 DOI:10.1103/PhysRevD.97.063506
 Phys. Rev. D **97**, no. 6, 063506 (2018)
 TTK-17-32
12. **“Comparison of Einstein-Boltzmann solvers for testing general relativity”**
 E. Bellini *et al.*.
 arXiv:1709.09135 [astro-ph.CO]
 DOI:10.1103/PhysRevD.97.023520
 Phys. Rev. D **97**, no. 2, 023520 (2018)
 NORDITA-2017-098
13. **“Interacting Dark Sector and Precision Cosmology”**
 M. A. Buen-Abad, M. Schmaltz, J. Lesgourgues and T. Brinckmann.
 arXiv:1708.09406 [astro-ph.CO]
 DOI:10.1088/1475-7516/2018/01/008
 JCAP **1801**, no. 01, 008 (2018)
14. **“Exploring cosmic origins with CORE: mitigation of systematic effects”**
 P. Natoli *et al.* [CORE Collaboration].
 arXiv:1707.04224 [astro-ph.CO]
 DOI:10.1088/1475-7516/2018/04/022
 JCAP **1804**, no. 04, 022 (2018)
15. **“Exploring cosmic origins with CORE: Gravitational lensing of the CMB”**
 A. Challinor *et al.* [CORE Collaboration].
 arXiv:1707.02259 [astro-ph.CO]
 DOI:10.1088/1475-7516/2018/04/018
 JCAP **1804**, no. 04, 018 (2018)
16. **“Calculation of the local density of relic neutrinos”**
 P. F. de Salas, S. Gariazzo, J. Lesgourgues and S. Pastor.
 arXiv:1706.09850 [astro-ph.CO]
 DOI:10.1088/1475-7516/2017/09/034
 JCAP **1709**, no. 09, 034 (2017)
17. **“Linear scale bounds on dark matter–dark radiation interactions and connection with the small scale crisis of cold dark matter”**
 M. Archidiacono, S. Bohr, S. Hannestad, J. H. Jrgensen and J. Lesgourgues.
 arXiv:1706.06870 [astro-ph.CO]
 DOI:10.1088/1475-7516/2017/11/010
 JCAP **1711**, no. 11, 010 (2017)
18. **“Exploring cosmic origins with CORE: Survey requirements and mission design”**
 J. Delabrouille *et al.* [CORE Collaboration].
 arXiv:1706.04516 [astro-ph.IM]
 DOI:10.1088/1475-7516/2018/04/014
 JCAP **1804**, no. 04, 014 (2018)
19. **“Constraints from Ly- α forests on non-thermal dark matter including resonantly-produced sterile neutrinos”**
 J. Baur, N. Palanque-Delabrouille, C. Yèche, A. Boyarsky, O. Ruchayskiy, . Armengaud and J. Lesgourgues.
 arXiv:1706.03118 [astro-ph.CO]

- DOI:10.1088/1475-7516/2017/12/013
JCAP **1712**, no. 12, 013 (2017)
20. **“Exploring cosmic origins with CORE: The instrument”**
P. de Bernardis *et al.* [CORE Collaboration].
arXiv:1705.02170 [astro-ph.IM]
DOI:10.1088/1475-7516/2018/04/015
JCAP **1804**, no. 04, 015 (2018)
 21. **“Neutrino properties from cosmology”**
M. Archidiacono, T. Brinckmann, J. Lesgourgues and V. Poulin.
arXiv:1705.00496 [astro-ph.CO]
NUPHYS2016-ARCHIDIACONO
 22. **“Exploring cosmic origins with CORE: effects of observer peculiar motion”**
C. Burigana *et al.* [CORE Collaboration].
arXiv:1704.05764 [astro-ph.CO]
DOI:10.1088/1475-7516/2018/04/021
JCAP **1804**, no. 04, 021 (2018)
 23. **“Exploring cosmic origins with CORE: B -mode component separation”**
M. Remazeilles *et al.* [CORE Collaboration].
arXiv:1704.04501 [astro-ph.CO]
DOI:10.1088/1475-7516/2018/04/023
JCAP **1804**, no. 04, 023 (2018)
 24. **“Exploring Cosmic Origins with CORE: Cluster Science”**
J. B. Melin *et al.* [CORE Collaboration].
arXiv:1703.10456 [astro-ph.CO]
DOI:10.1088/1475-7516/2018/04/019
JCAP **1804**, no. 04, 019 (2018)
 25. **“Exploring cosmic origins with CORE: Inflation”**
F. Finelli *et al.* [CORE Collaboration].
arXiv:1612.08270 [astro-ph.CO]
DOI:10.1088/1475-7516/2018/04/016
JCAP **1804**, 016 (2018)
 26. **“Exploring cosmic origins with CORE: Cosmological parameters”**
E. Di Valentino *et al.* [CORE Collaboration].
arXiv:1612.00021 [astro-ph.CO]
DOI:10.1088/1475-7516/2018/04/017
JCAP **1804**, 017 (2018)
 27. **“Cosmological constraints on exotic injection of electromagnetic energy”**
V. Poulin, J. Lesgourgues and P. D. Serpico.
arXiv:1610.10051 [astro-ph.CO]
DOI:10.1088/1475-7516/2017/03/043
JCAP **1703**, no. 03, 043 (2017)
 28. **“Physical effects involved in the measurements of neutrino masses with future cosmological data”**
M. Archidiacono, T. Brinckmann, J. Lesgourgues and V. Poulin.
arXiv:1610.09852 [astro-ph.CO]
DOI:10.1088/1475-7516/2017/02/052
JCAP **1702**, no. 02, 052 (2017)
TTK-16-44, LAPTH-062-16

29. **“Exploring cosmic origins with CORE: Extragalactic sources in cosmic microwave background maps”**
G. De Zotti *et al.* [CORE Collaboration].
arXiv:1609.07263 [astro-ph.GA]
DOI:10.1088/1475-7516/2018/04/020
JCAP **1804**, no. 04, 020 (2018)
30. **“A fresh look at linear cosmological constraints on a decaying dark matter component”**
V. Poulin, P. D. Serpico and J. Lesgourgues.
arXiv:1606.02073 [astro-ph.CO]
DOI:10.1088/1475-7516/2016/08/036
JCAP **1608**, no. 08, 036 (2016)
LAPTH-027-16
31. **“hi_class: Horndeski in the Cosmic Linear Anisotropy Solving System”**
M. Zumalacregui, E. Bellini, I. Sawicki, J. Lesgourgues and P. G. Ferreira.
arXiv:1605.06102 [astro-ph.CO]
DOI:10.1088/1475-7516/2017/08/019
JCAP **1708**, no. 08, 019 (2017)
NORDITA-2016-41
32. **“Curvature constraints from Large Scale Structure”**
E. Di Dio, F. Montanari, A. Raccanelli, R. Durrer, M. Kamionkowski and J. Lesgourgues.
arXiv:1603.09073 [astro-ph.CO]
DOI:10.1088/1475-7516/2016/06/013
JCAP **1606**, no. 06, 013 (2016)
HIP-2016-14-TH
33. **“A White Paper on keV Sterile Neutrino Dark Matter”**
M. Drewes *et al.*.
arXiv:1602.04816 [hep-ph]
DOI:10.1088/1475-7516/2017/01/025
JCAP **1701**, no. 01, 025 (2017)
FERMILAB-PUB-16-068-T
34. **“Planck 2015 results. XII. Full Focal Plane simulations”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1509.06348 [astro-ph.CO]
DOI:10.1051/0004-6361/201527103
Astron. Astrophys. **594**, A12 (2016)
35. **“Dark Matter annihilations in halos and high-redshift sources of reionization of the universe”**
V. Poulin, P. D. Serpico and J. Lesgourgues.
arXiv:1508.01370 [astro-ph.CO]
DOI:10.1088/1475-7516/2015/12/041
JCAP **1512**, no. 12, 041 (2015)
36. **“Evidence for dark matter interactions in cosmological precision data?”**
J. Lesgourgues, G. Marques-Tavares and M. Schmaltz.
arXiv:1507.04351 [astro-ph.CO]
DOI:10.1088/1475-7516/2016/02/037
JCAP **1602**, no. 02, 037 (2016)
37. **“Planck 2015 results. XI. CMB power spectra, likelihoods, and robustness of parameters”**
N. Aghanim *et al.* [Planck Collaboration].

- arXiv:1507.02704 [astro-ph.CO]
 DOI:10.1051/0004-6361/201526926
 Astron. Astrophys. **594**, A11 (2016)
38. **“Planck 2015 results. XXVI. The Second Planck Catalogue of Compact Sources”**
 P. A. R. Ade *et al.* [Planck Collaboration].
 arXiv:1507.02058 [astro-ph.CO]
 DOI:10.1051/0004-6361/201526914
 Astron. Astrophys. **594**, A26 (2016)
39. **“Planck 2015 results. XVI. Isotropy and statistics of the CMB”**
 P. A. R. Ade *et al.* [Planck Collaboration].
 arXiv:1506.07135 [astro-ph.CO]
 DOI:10.1051/0004-6361/201526681
 Astron. Astrophys. **594**, A16 (2016)
40. **“Planck 2015 results. XXV. Diffuse low-frequency Galactic foregrounds”**
 P. A. R. Ade *et al.* [Planck Collaboration].
 arXiv:1506.06660 [astro-ph.GA]
 DOI:10.1051/0004-6361/201526803
 Astron. Astrophys. **594**, A25 (2016)
41. **“Neutrino masses and cosmology with Lyman-alpha forest power spectrum”**
 N. Palanque-Delabrouille *et al.*.
 arXiv:1506.05976 [astro-ph.CO]
 DOI:10.1088/1475-7516/2015/11/011
 JCAP **1511**, no. 11, 011 (2015)
42. **“Planck 2015 results. V. LFI calibration”**
 P. A. R. Ade *et al.* [Planck Collaboration].
 arXiv:1505.08022 [astro-ph.IM]
 DOI:10.1051/0004-6361/201526632
 Astron. Astrophys. **594**, A5 (2016)
43. **“Planck 2015 results. IX. Diffuse component separation: CMB maps”**
 R. Adam *et al.* [Planck Collaboration].
 arXiv:1502.05956 [astro-ph.CO]
 DOI:10.1051/0004-6361/201525936
 Astron. Astrophys. **594**, A9 (2016)
44. **“Planck 2015 results. XX. Constraints on inflation”**
 P. A. R. Ade *et al.* [Planck Collaboration].
 arXiv:1502.02114 [astro-ph.CO]
 DOI:10.1051/0004-6361/201525898
 Astron. Astrophys. **594**, A20 (2016)
45. **“Planck 2015 results. XXVIII. The Planck Catalogue of Galactic Cold Clumps”**
 P. A. R. Ade *et al.* [Planck Collaboration].
 arXiv:1502.01599 [astro-ph.GA]
 DOI:10.1051/0004-6361/201525819
 Astron. Astrophys. **594**, A28 (2016)
46. **“Planck 2015 results VII. High Frequency Instrument data processing: Time-ordered information and beams”**
 R. Adam *et al.* [Planck Collaboration].
 arXiv:1502.01586 [astro-ph.IM]
 DOI:10.1051/0004-6361/201525844
 Astron. Astrophys. **594**, A7 (2016)

47. **“Planck 2015 results. XXVII. The Second Planck Catalogue of Sunyaev-Zeldovich Sources”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01598 [astro-ph.CO]
DOI:10.1051/0004-6361/201525823
Astron. Astrophys. **594**, A27 (2016)
48. **“Planck 2015 results. XXIV. Cosmology from Sunyaev-Zeldovich cluster counts”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01597 [astro-ph.CO]
DOI:10.1051/0004-6361/201525833
Astron. Astrophys. **594**, A24 (2016)
49. **“Planck 2015 results. XXII. A map of the thermal Sunyaev-Zeldovich effect”**
N. Aghanim *et al.* [Planck Collaboration].
arXiv:1502.01596 [astro-ph.CO]
DOI:10.1051/0004-6361/201525826
Astron. Astrophys. **594**, A22 (2016)
50. **“Planck 2015 results. XXI. The integrated Sachs-Wolfe effect”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01595 [astro-ph.CO]
DOI:10.1051/0004-6361/201525831
Astron. Astrophys. **594**, A21 (2016)
51. **“Planck 2015 results. XIX. Constraints on primordial magnetic fields”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01594 [astro-ph.CO]
DOI:10.1051/0004-6361/201525821
Astron. Astrophys. **594**, A19 (2016)
52. **“Planck 2015 results - XVIII. Background geometry and topology of the Universe”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01593 [astro-ph.CO]
DOI:10.1051/0004-6361/201525829
Astron. Astrophys. **594**, A18 (2016)
53. **“Planck 2015 results. XVII. Constraints on primordial non-Gaussianity”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01592 [astro-ph.CO]
DOI:10.1051/0004-6361/201525836
Astron. Astrophys. **594**, A17 (2016)
54. **“Planck 2015 results. XV. Gravitational lensing”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01591 [astro-ph.CO]
DOI:10.1051/0004-6361/201525941
Astron. Astrophys. **594**, A15 (2016)
55. **“Planck 2015 results. XIV. Dark energy and modified gravity”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01590 [astro-ph.CO]
DOI:10.1051/0004-6361/201525814
Astron. Astrophys. **594**, A14 (2016)
56. **“Planck 2015 results. XIII. Cosmological parameters”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01589 [astro-ph.CO]

- DOI:10.1051/0004-6361/201525830
Astron. Astrophys. **594**, A13 (2016)
57. **“Planck 2015 results. X. Diffuse component separation: Foreground maps”**
R. Adam *et al.* [Planck Collaboration].
arXiv:1502.01588 [astro-ph.CO]
DOI:10.1051/0004-6361/201525967
Astron. Astrophys. **594**, A10 (2016)
 58. **“Planck 2015 results. VIII. High Frequency Instrument data processing: Calibration and maps”**
R. Adam *et al.* [Planck Collaboration].
arXiv:1502.01587 [astro-ph.CO]
DOI:10.1051/0004-6361/201525820
Astron. Astrophys. **594**, A8 (2016)
 59. **“Planck 2015 results. VI. LFI mapmaking”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01585 [astro-ph.CO]
DOI:10.1051/0004-6361/201525813
Astron. Astrophys. **594**, A6 (2016)
 60. **“Planck 2015 results. IV. Low Frequency Instrument beams and window functions”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01584 [astro-ph.CO]
DOI:10.1051/0004-6361/201525809
Astron. Astrophys. **594**, A4 (2016)
 61. **“Planck 2015 results - II. Low Frequency Instrument data processings”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.01583 [astro-ph.IM]
DOI:10.1051/0004-6361/201525818
Astron. Astrophys. **594**, A2 (2016)
 62. **“Planck 2015 results. I. Overview of products and scientific results”**
R. Adam *et al.* [Planck Collaboration].
arXiv:1502.01582 [astro-ph.CO]
DOI:10.1051/0004-6361/201527101
Astron. Astrophys. **594**, A1 (2016)
 63. **“Planck 2013 results. XXXII. The updated Planck catalogue of Sunyaev-Zeldovich sources”**
P. A. R. Ade *et al.* [Planck Collaboration].
arXiv:1502.00543 [astro-ph.CO]
DOI:10.1051/0004-6361/201525787
Astron. Astrophys. **581**, A14 (2015)
 64. **“CoRE: Cosmic Origins Explorer - A White Paper”**
F. R. Bouchet *et al.*
 65. **“Constraints on dark radiation from cosmological probes”**
G. Rossi, C. Yche, N. Palanque-Delabrouille and J. Lesgourgues.
arXiv:1412.6763 [astro-ph.CO]
DOI:10.1103/PhysRevD.92.063505
Phys. Rev. D **92**, no. 6, 063505 (2015)
CERN-PH-TH-2014-267

66. **“Robustness of cosmic neutrino background detection in the cosmic microwave background”**
 B. Audren *et al.*.
 arXiv:1412.5948 [astro-ph.CO]
 DOI:10.1088/1475-7516/2015/03/036
 JCAP **1503**, 036 (2015)
 CERN-PH-TH-2014-266, LAPTH-238-14, FTUAM-14-51, IFT-UAM-CSIC-14-132
67. **“Quinze annes de recherche sur la Cosmologie des Neutrinos”**
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