

# CURRICULUM VITAE

January 15, 2025

## 1 Personal Data

- Name: Ramon Miquel Pascual
- Birth date: November 4<sup>th</sup>, 1962
- Birth place: Gelida, Barcelona (Spain)
- Citizenship: Spanish
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## 2 Education

- 1980–1985: Study of Physics at the Universitat de Barcelona. Final grade: “Matrícula d’Honor” (highest).
- 1985–1986: Master Degree thesis “Methods for neutrino counting with the ALEPH detector” (Universitat Autònoma de Barcelona, 1986). Adviser: Prof. Enrique Fernández. Grade : “Excel·lent” (highest).
- 1986–1989: Ph. D. thesis “Radiative corrections to single photon processes” (Universitat Autònoma de Barcelona, 1989). Adviser: Dr. Manel Martínez. Grade: “Apte cum laude” (highest).

## 3 Positions

- 1985–1989: Research Assistant at the Laboratori de Física d’Altes Energies of the Universitat Autònoma de Barcelona.
- 1989–1990: Acting Associate Professor (“Professor Titular Interí”) at the Universitat Autònoma de Barcelona.
- 1991–1992: Fellow at CERN (European Laboratory for Particle Physics), Geneva (Switzerland).
- 1993–1996: Staff scientist at CERN.
- 1997–2001: Associate Professor (“Professor Titular”) at the Universitat de Barcelona.
- 2001–2006: Career staff scientist at Lawrence Berkeley National Laboratory, Berkeley, California (USA).
- 2006– : ICREA research professor at IFAE (Institut de Física d’Altes Energies), Bellaterra (Barcelona).

## 4 Awards

- 1986: Extraordinary Graduation Award, University of Barcelona.
- 2000: “Distinció per a la Promoció de la Recerca Universitària”, Catalan Government Award for young scientists. The 2000 call was the first one.

## 5 Teaching Activities

- 1989–1990: Developed and taught a “Physics I” course for first year Veterinary Medical students at the Universitat Autònoma de Barcelona.
- 1997–2000: Developed and taught a “Calculus II” course for first year Physics students at the Universitat de Barcelona.
- 1998–2000: Developed and taught a “Nuclear and Particle Physics” course for fourth year Physics students at the Universitat de Barcelona.
- 2007–2009: Developed and taught a “Monte Carlo Methods” course for graduate students in the Master of Physics at the Universitat Autònoma de Barcelona.
- 2007–2009: Developed and taught a “Bayesian Statistics” course for graduate students in the Master of Physics at the Universitat Autònoma de Barcelona.
- 2008 : Developed and wrote proposal for new Master degree on High-Energy Physics, Astrophysics and Cosmology at the Universitat Autònoma de Barcelona.
- 2009–2014: Coordinator of the Master on High-Energy Physics, Astrophysics and Cosmology at the Universitat Autònoma de Barcelona.
- 2014–2022: Developed and taught a “Parameter Estimation and Bayesian Statistics” course for graduate students in the Master degree on High-Energy Physics, Astrophysics and Cosmology at the Universitat Autònoma de Barcelona.
- 2017–2022: Developed and taught a “Bayesian Statistics” course for graduate students in the Master degree on Interdisciplinary Research at the Universitat Pompeu Fabra.

## 6 Theses Advised

- Adviser of the Master Degree Thesis “Study of Muon Final States in ALEPH” by E. Tubau (Universitat Autònoma de Barcelona, 1989). Grade: “Excel·lent” (highest).
- Adviser of the Master Degree Thesis “Measurement of the Parameters of the  $Z^0$  Boson from the Process  $e^+e^- \rightarrow \mu^+\mu^-$  with the ALEPH Detector” by V. Gaitan (Universitat Autònoma de Barcelona, 1990). Grade: “Excel·lent” (highest).
- Adviser of the Ph. D. Thesis “Measurement of  $\alpha_s$  from Scaling Violations in Fragmentation Functions in  $e^+e^-$  Annihilations” by C. Padilla (Universitat Autònoma de Barcelona, 1995). Grade: “Apte cum laude” (highest).
- Adviser of the Master Degree Thesis “Commissioning of the RICH Detector of HERA-B” by D. Peralta (Universitat de Barcelona, 1999). Grade: “Excel·lent” (highest).
- Co-adviser of the Master Degree Thesis “Tests of the DES Charge-Coupled Devices” by Ll. Galbany (Universitat Autònoma de Barcelona, 2008). Grade: “Excel·lent” (highest).

- Adviser of the Master Degree Thesis “Narrow Band Filter Systems for the PAU Photo-z Survey” by P. Martí (Universitat Autònoma de Barcelona, 2009). Grade: “Excel·lent” (highest).
- Adviser of the Ph. D. Thesis “Supernova Studies in the SDSS-II/SNe Survey: Spectroscopy of the Peculiar SN 2007qd, and Photometric Properties of Type-Ia Supernovae as a Function of the Distance to the Host Galaxy” by Ll. Galbany (Universitat Autònoma de Barcelona, 2011). Grade: “Excel·lent cum laude” (highest).
- Adviser of the Master Degree Thesis “Photometric Redshifts With Training-Based Methods for Galaxy Surveys with Multiple Narrow Band Filters” by C. Sánchez (Universitat Autònoma de Barcelona, 2013). Grade: “Excel·lent” (highest).
- Adviser of the Ph. D. Thesis “Precise photometric redshifts with narrow-band filters, quality cuts and their impact on the measured galaxy clustering” by P. Martí (Universitat Autònoma de Barcelona, 2014). Grade: “Excel·lent cum laude” (highest).
- Adviser of the Master Degree Thesis “Galaxy bias from galaxy-galaxy lensing measurements in the DES Science Verification data set” by Judit Prat (Universitat Autònoma de Barcelona, 2015). Grade: “Excel·lent” (highest).
- Adviser of the Master Degree Thesis “Clustering-based redshift estimation” by Isaac Tutusaus (Universitat Autònoma de Barcelona, 2015). Grade: “Excel·lent” (highest).
- Adviser of the Ph. D. Thesis “Dark Energy properties from the combination of large-scale structure and weak gravitational lensing in the Dark Energy Survey” by Carles Sánchez (Universitat Autònoma de Barcelona, 2017). Grade: “Excel·lent cum laude” (highest).
- Adviser of the Ph. D. Thesis “Cross-correlations in the Dark Energy Survey: from redshift distribution inference to probes of gravity with the Cosmic Microwave Background” by Pauline Vielzeuf (Universitat Autònoma de Barcelona, 2018). Grade: “Excel·lent cum laude” (highest).
- Adviser of the Ph. D. Thesis “Cosmology and the galaxy-matter connection using weak gravitational lensing cross-correlations in the Dark Energy Survey” by Judit Prat (Universitat Autònoma de Barcelona, 2019). Grade: “Excel·lent cum laude” (highest).
- Adviser of the Ph. D. Thesis “Weak lensing in DES Y3: redshift distributions, shape catalogue, and mass mapping” by Marco Gatti (Universitat Autònoma de Barcelona, 2020). Grade: “Excel·lent cum laude” (highest).
- Adviser of the Ph. D. Thesis “Photometric Redshift Calibration in DES Y3” by Giulia Giannini (Universitat Autònoma de Barcelona, 2022). Grade: “Excel·lent cum laude” (highest).
- Adviser of the Ph. D. Thesis “Testing the  $\Lambda$ CDM Model: Cross-Correlations of Cosmic Voids and CMB Lensing” by Umut Demirbozan (Universitat Autònoma de Barcelona, January 13, 2025). Grade: “Excel·lent cum laude” (highest).
- Current adviser of one PhD thesis: Elena Legnani

## 7 Relevant Posts Held

- 1994–now: Regular referee for Physical Review Letters, Physical Review D and Astrophysical Journal.
- 1995–2000: Co-convener of the Top Working Group of the European Workshops for Physics at the Next Linear Collider.
- 1998–2000: Co-convener of the Heavy Flavor (Lifetimes and Mixing) Working Group of the HERA-B experiment at DESY in Hamburg.

- 1998–2000: Member of the LEP Experiments’ Committee at CERN.
- 1999–2000: Member of the Collaboration Board of the LHCb experiment at CERN representing the University of Barcelona.
- 2002–2006: Principal Investigator of the National Science Foundation grant for the Berkeley Particle Data Group.
- 2002–2006: Regular referee for NSF projects and grants.
- 2004–2006: Deputy group leader of the Berkeley Particle Data Group.
- 2004–now: Regular referee for Catalan and Spanish funding agency projects and grants.
- 2006–2008: Member of the Publication Policy Committee of the DES collaboration.
- 2007–2008: Spanish representative in the Steering Committee of the Dark UNiverse Explorer (DUNE) satellite mission.
- 2007–now: Spanish representative in the Management Committee of the Dark Energy Survey (DES) Collaboration. PI of the IFAE group in DES.
- 2007–2014: Deputy coordinator of the “Physics of the Accelerated Universe” (PAU) Consolider-Ingenio 2010 project. PI of the IFAE group in PAU.
- 2008–2014: Associate Director of IFAE.
- 2009        Member of the Search Committee for the Director of DES.
- 2009–2013: Chair of the Speakers’ Bureau of the DES Collaboration.
- 2009–now: Member of the Publication Board of the DES Collaboration.
- 2013–2019: Member of the Scientific Advisory Committee of the Astroparticle Physics European Consortium (APPEC).
- 2014–2019: Member of the Builders Committee of the DES Collaboration.
- 2015–2020: Member of the Collaboration Board of the EU-T0 Consortium.
- 2015–2022: Director of IFAE.
- 2015–2022: Member of the Board of Trustees of The Barcelona Institute of Science and Technology (BIST)
- 2015–now: Member of the Management Committee of the PAU Survey.
- 2016–2023: Member of the Advisory Board of the DES Collaboration.
- 2018–2020: Member of the Speakers Committee of the DESI Collaboration.
- 2018–2022: Member of the Executive Committee of ACER, the Association of Catalan Research Entities.
- 2019–2022 Member of the Board of Trustees of the Fundació Institució dels Centres de Recerca de Catalunya (I-CERCA)
- 2019–now: Chair of the Builders Committee of the DES Collaboration.
- 2019–now: Member of the International Advisory Committee of the INFIERI (INtelligent signal processing for FrontIER Research and Industry) international global school series.
- 2020-2022: Member of the Executive Committee of SOMMa, the association of Severo Ochoa and María de Maeztu research centers.

- 2021–2023: Member of the Membership Committee of the DESI Collaboration.
- 2021–now: Member of the Board of the Division of High Energy and Particle Physics of the European Physical Society.
- 2021–now: Coordinator of the Spanish Plan Complementario de Astrofísica y Física de Altas Energías in Catalonia.
- 2022–now: Coordinator of the Spanish Plan Complementario de Astrofísica y Física de Altas Energías in Spain.
- 2023–now: Co-chair of the Membership Committee of the DESI Collaboration.

## 8 Research Activities

### 8.1 1986–1990 at Universitat Autònoma de Barcelona

- Ph. D. thesis based on Monte Carlo computations of processes related to single photon production at the Z, both signal and background, including radiative corrections.
  - Monte Carlo programs used widely by the LEP Collaborations at CERN.
  - Published four papers on the topic and gave four talks in conferences.
- Worked on the preparation of the  $Z \rightarrow \mu^+\mu^-$  analysis within the ALEPH Collaboration at LEP.
  - Results published in the early ALEPH electroweak papers (1989–1990).

### 8.2 1991–1996 at CERN

- Work on overall electroweak analysis and fits to the Standard Model predictions. Contributed to the development of lineshape fitting formulas for both s-channel processes, like  $e^+e^- \rightarrow \mu^+\mu^-$ , and Bhabha scattering.
  - Both formulas were used by LEP Collaborations.
  - Published two papers and contributed to three other ALEPH electroweak papers. Co-editor of the 1994 ALEPH electroweak paper.
  - Gave many talks and seminars on this topic, and was one of the conveners of the electroweak session in the 1997 Europhysics conference on High Energy Physics in Jerusalem.
  - Co-wrote a Reviews of Modern Physics article on the subject.
- Was one of the coordinators for the ALEPH data-taking and responsible for the offline data-quality checks. Coordinated the writing of a large program to check the correct behavior of all parts of the detector quasi-online from the data themselves.
- Co-led two ALEPH analyses on  $\alpha_s$  determinations. One of them using predictions which re-summed higher-order corrections, another using the scaling violations in fragmentation functions.
  - Co-wrote two ALEPH papers. Both set the standards for these measurements and the techniques were used by the other LEP collaborations.
  - Gave several talks on this and was the main editor of an ALEPH Physics Reports paper on QCD analyses.
- Participated in commissioning of the new luminosity monitor for ALEPH (SiCAL). Main contribution was on-line calibration software. After the detector installation, worked on data analysis: alignment, systematic errors, etc., and on constraining new physics using the new data.

- Co-editor of the ALEPH electroweak paper which contained the analysis of the first data taken with SiCAL.
- Worked on the preparation of LEP2 analyses, particularly the determination of the W boson mass. Was acting convener of the ALEPH W group in summer 1996 when first LEP2 data became available. Devised strategy for first measurement of the W mass in ALEPH.
  - Was one of the ALEPH representatives in the LEP-wide workshop for LEP2 physics in 1994–1995.
  - Was ALEPH representative on W subgroup of LEP Electroweak Working Group in 1996.
  - Gave LEP Experiments’ Committee talk presenting the first ALEPH LEP2 data.
  - Gave a number of other talks on LEP2 physics and wrote two papers.
- Worked on physics studies for the next linear collider, in particular in top quark physics.
  - Co-convener of the top quark European working group.
  - Gave several talks, wrote parts of a Physics Reports paper and organized the top quark parallel sessions in two world-wide Linear Collider conferences, in 1993 (Hawai’i) and 1995 (Morioka, Japan).

### 8.3 1997–2000 at Universitat de Barcelona

- Member of the HERA-B collaboration at DESY (Hamburg). Worked on the RICH detector, mainly on tests of the read-out electronics as well as in the calibration and monitoring system.
  - Co-wrote two NIM papers.
- Co-convener of the Heavy Flavor working group of HERA-B, dealing mainly with lifetime and oscillations measurements.
- Member of the LHCb collaboration at CERN (1999–2000). Co-leader of the Universitat de Barcelona group in LHCb. Worked on the design of the preshower of the electromagnetic calorimeter.
  - Co-wrote a NIM publication with the analysis of the tests with the first prototype.

### 8.4 2001–2006 at Lawrence Berkeley National Laboratory (LBNL)

- Member of the Particle Data Group (PDG) at Berkeley. Coordinator of Neutrino Physics, Probability and Statistics for the Review of Particle Physics.
  - Over 3000 citations each for 2002, 2004, 2006 editions of the Review of Particle Physics.
- Co-leader (2002-2004) of the LBNL heavy-flavor physics group with the CDF Collaboration at the Tevatron. Completed first LBNL CDF Run II physics analysis. This was the first measurement of the hadronic invariant mass distribution in semileptonic  $B$  decays in a hadron machine.
  - Gave a talk on this analysis representing the CDF Collaboration. Wrote the Physical Review D CDF paper describing the analysis and the results.
- Continued work on top physics in a future linear collider.
  - Gave several talks and co-wrote a paper in EJPC.
- Member of the SNAP Collaboration designing the SNAP satellite. Worked on calibration studies, systematic error studies, optimization studies, determination of cosmological parameters. Coordinator of the data analysis package for SNAP.
  - Co-wrote three papers on calibration, systematic errors and cosmology determination. Contributed to large SNAP paper.

## 8.5 2006–now at Institut de Física d’Altes Energies

- Member of the Dark Energy Survey (DES) Collaboration, preparing a galaxy and supernova imaging survey in the southern hemisphere that started in 2013. My group at IFAE designed and produced most of the read-out electronics for the DES camera. Worked also on design of the DES supernova survey. Currently working on photometric redshift determination and on galaxy-galaxy lensing and its combination with large-scale structure information.
  - PI of IFAE group in DES.
  - Member of DES Publication Policy Committee (2006–2008).
  - Member of DES Management Committee.
  - Member of DES Director search committee (2009).
  - Chair of DES Speakers’ Bureau (2009–2013).
  - Member of DES Publication Board.
  - Member of the Advisory Board.
  - Member and now Chair of the Builders Committee.
  - Co-wrote the very first DES science publication, presenting photometric redshift studies with the early DES data
  - Given a number of general DES talks.
- Member of the Physics of the Accelerated Universe (PAU) Collaboration that built a wide-field camera for a medium-band photometric galaxy redshift survey in Spain. PAU was awarded a “Consolider Ingenio 2010” 5 million euro grant in 2007. Worked on extraction of cosmological information from mock-up data, and, with graduate student, on photometric redshift determination.
  - Deputy coordinator of the PAU project (2007-2014). PI of IFAE group in PAU.
  - Gave several talks and co-wrote five papers on PAU capabilities and related topics.
- Member of the Dark Energy Spectroscopic Instrument (DESI) Collaboration), preparing a galaxy and quasar spectroscopic survey that started in 2021. My group at IFAE designed and produced the 10 Guiding, Focusing and Alignment (GFA) cameras, the only imaging instrument in DESI.
  - PI of IFAE group in DESI.
  - Member of DESI Speakers’ Board.
  - Member and now Chair of the DESI Membership Committee.
  - Given several DESI talks.
- Member of the Dark Energy Science Collaboration (DESC) of the Legacy Survey of Space and Time (LSST) project, preparing an imaging galaxy survey that will start in 2025.
  - Led the original application process of the DESC/Spain contingent: eight principal investigators from four Spanish institutions.
  - Co-leading the current re-negotiation process for 15 PIs from four Spanish institutions, necessary after the US funding agencies voided all existing international agreements related to LSST.
- Provisional member of the CMB-S4 Collaboration. Leading the negotiations of four Spanish institutions to join the collaboration.
- External Collaborator of the Sloan Digital Sky Survey (SDSS) II Supernova project, discovering type-Ia supernovae in the redshift range  $0.1 < z < 0.4$ , and following them photometrically and spectroscopically. Worked on analysis of supernova data with graduate student.
  - PI of proposal awarded four full nights at the Telescopio Nazionale Galileo (La Palma) for spectroscopic follow-up of SDSS-II supernovae in fall 2007.

- Results published in three 2007 CBET circulars (1098, 1128, 1137). Data used in a large number of SDSS-II papers.
- Co-wrote papers on analysis of very peculiar supernova 2007qd and on analysis of supernova properties as a function to the distance to the center of their host galaxy (a proxy for local galaxy properties).
- Member of the DUNE Collaboration that prepared a proposal for ESA’s Cosmic Vision program. DUNE would survey 20,000 deg<sup>2</sup> of the sky and measure dark energy properties mostly through weak lensing measurements. Worked on design of supernova survey using DUNE deep exposures. DUNE was eventually merged into the Euclid mission, and was eventually selected by ESA to be launched in 2022.
  - Member of DUNE Steering Committee until 2008.
- Continued collaboration with Particle Data Group, as coordinator of Neutrino Physics for the Review of Particle Physics, until late 2010.
  - Over 6000 citations for the 2008, 2010 and 2012 editions of the Review of Particle Physics.
  - Gave a plenary talk by invitation on neutrino mass treatment at PDG.
- Continued work within SNAP Collaboration on photometric redshift studies and determination of cosmological parameters until the mission was cancelled in late 2008.
  - Co-wrote two papers on these issues, and gave a general SNAP talk.

## 9 Publication List

I am an author of over 880 publications in refereed journals, many of them as a member of large international collaborations, with a career  $h$  index of 127. A list of selected publications in which I made a significant contribution follows.

1. U. Demirbozan et al. (DES Collaboration), “The gravitational lensing imprints of DES Y3 superstructures on the CMB: a matched filtering approach,” *Mon. Not. Roy. Astron. Soc.* 534 (2024) no.3, 2328
2. G. Giannini et al. (DES Collaboration), “Dark Energy Survey Year 3 results: redshift calibration of the MagLim lens sample from the combination of SOMPZ and clustering and its impact on cosmology,” *Mon. Not. Roy. Astron. Soc.* 527 (2024) no.2, 2010
3. L. Cabayol et al. (PAU Survey and Euclid Collaborations), “The PAU Survey and Euclid: Improving broadband photometric redshifts with multi-task learning” *Astron. Astrophys.* 671 (2023) A153
4. J. Silberet al. (DESI Collaboration), “The Robotic Multiobject Focal Plane System of the Dark Energy Spectroscopic Instrument (DESI),” *Astron. J.* 165 (2023) 1, 9
5. T. M. C. Abbott et al. (DES Collaboration), “Dark Energy Survey year 3 results: Cosmological constraints from galaxy clustering and weak lensing,” *Phys. Rev. D* 115 (2022) no.2, 023520
6. M. Gatti et al. (DES Collaboration), “Dark Energy Survey Year 3 Results: clustering redshifts — calibration of the weak lensing source redshift distributions with redMaGiC and BOSS/eBOSS,” *Mon. Not. Roy. Astron. Soc.* 510 (2022) no.1, 1223
7. N. Jeffrey, M. Gatti et al. (DES Collaboration), “Dark Energy Survey Year 3 results: Curved-sky weak lensing mass map reconstruction,” *Mon. Not. Roy. Astron. Soc.* 505 (2021) no.3, 4626

8. M. Gatti et al. (DES Collaboration), “Dark energy survey year 3 results: weak lensing shape catalogue,” *Mon. Not. Roy. Astron. Soc.* 504 (2021) no.3, 4312
9. P. Vielzeuf et al. (DES Collaboration), “Dark Energy Survey Year 1 Results: the lensing imprint of cosmic voids on the Cosmic Microwave Background,” *Mon. Not. Roy. Astron. Soc.* 500 (2020) no.1, 464
10. M. Gatti et al. (DES Collaboration), “Dark Energy Survey Year 3 results: cosmology with moments of weak lensing mass maps – validation on simulations,” *Mon. Not. Roy. Astron. Soc.* 498 (2020) no.3, 4060
11. C. Padilla et al. “The Physics of the Accelerating Universe Camera,” *Astron. J.* 157 (2019).
12. J. Prat et al. (DES and SPT Collaborations), “Cosmological lensing ratios with DES Y1, SPT and Planck,” *Mon. Not. Roy. Astron. Soc.* 487 (2019) no.1, 1363
13. A. Kovacs et al. (DES Collaboration), “More out of less: an excess integrated Sachs-Wolfe signal from supervoids mapped out by the Dark Energy Survey,” *Mon. Not. Roy. Astron. Soc.* 484 (2019) 5267
14. M. Eriksen et al., “The PAU Survey: early demonstration of photometric redshift performance in the COSMOS field,” *Mon. Not. Roy. Astron. Soc.* 484 (2019) no.3, 4200
15. L. Cabayol et al., “The PAU survey: star-galaxy classification with multi narrow-band data,” *Mon. Not. Roy. Astron. Soc.* 483 (2018) no.1, 529
16. M. Sako et al. (SDSS Collaboration), “The Data Release of the Sloan Digital Sky Survey-II Supernova Survey,” *Publ. Astron. Soc. Pac.* 130 (2018) no.988, 064002
17. T. M. C. Abbott et al. (DES Collaboration), “Dark Energy Survey year 1 results: Cosmological constraints from galaxy clustering and weak lensing,” *Phys. Rev. D* 98 (2018) no.4, 043526
18. J. Prat et al. (DES Collaboration), “Dark Energy Survey year 1 results: Galaxy-galaxy lensing,” *Phys. Rev. D* 98 (2018) no.4, 042005
19. M. Gatti et al. (DES Collaboration), “Dark Energy Survey Year 1 Results: Cross-Correlation Redshifts – Methods and Systematics Characterization,” *Mon. Not. Roy. Astron. Soc.* 477 (2018) no.2, 1664
20. J. Prat et al. (DES Collaboration), “Galaxy bias from galaxy–galaxy lensing in the DES science verification data,” *Mon. Not. Roy. Astron. Soc.* 473 (2018) no.2, 1667
21. A. Kovacs et al. (DES Collaboration), “Imprint of DES superstructures on the cosmic microwave background,” *Mon. Not. Roy. Astron. Soc.* 465 (2017) no.4, 4166
22. C. Sanchez et al. (DES Collaboration), “Cosmic Voids and Void Lensing in the Dark Energy Survey Science Verification Data,” *Mon. Not. Roy. Astron. Soc.* 465 (2017) no.1, 746
23. J. Kwan et al. (DES Collaboration), “Cosmology from large-scale galaxy clustering and galaxy–galaxy lensing with Dark Energy Survey Science Verification data,” *Mon. Not. Roy. Astron. Soc.* 464 (2017) no.4, 4045
24. J. Clampitt et al. (DES Collaboration), “Galaxy—galaxy lensing in the Dark Energy Survey Science Verification data,” *Mon. Not. Roy. Astron. Soc.* 465 (2017) no.4, 4204
25. A. Aghamousa et al. (DESI Collaboration), “The DESI Experiment Part II: Instrument Design”, arXiv:1611.00037 [astro-ph.IM].
26. E. Suchyta et al. (DES Collaboration), “No galaxy left behind: accurate measurements with the faintest objects in the Dark Energy Survey”, *Mon. Not. R. Astron. Soc.* 457 (2016) 768.
27. C. Bonnett et al. (DES Collaboration), “Redshift distributions of galaxies in the Dark Energy Survey Science Verification shear catalogue and implications for weak lensing”, *Phys. Rev. D* 94 (2016) 042005.

28. T. Abbott et al. (DES Collaboration), “Cosmology from cosmic shear with Dark Energy Survey Science Verification data”, *Phys. Rev. D* 94 (2016) 022001.
29. M. Crocce et al. (DES Collaboration), “Galaxy clustering, photometric redshifts and diagnosis of systematics in the DES Science Verification data”, *Mont. Not. R. Astron. Soc.* 455 (2016) 4301.
30. B. Flaugher et al. (DES Collaboration), “The Dark Energy Camera”, *Astron. J.* 150 (2015) 150.
31. J. Newman et al., “Spectroscopic Needs for Imaging Dark Energy Experiments: Photometric Redshift Training and Calibration”, *Astropart. Phys.* 63 (2015) 81.
32. C. Sánchez et al. (DES Collaboration), “Photometric redshift analysis in the Dark Energy Survey Science Verification data”, *Mont. Not. R. Astron. Soc.* 445 (2014) 1482.
33. P. Martí, R. Miquel, F. J. Castander, E. Gaztañaga, M. Eriksen, C. Sánchez “Precise photometric redshifts with a narrow-band filter set: The PAU Survey at the William Herschel Telescope”, *Mont. Not. R. Astron. Soc.* 442 (2014) 92.
34. Anne H. Bauer, Enrique Gaztañaga, Pol Martí, Ramon Miquel, “Magnification of Photometric LRGs by Foreground LRGs and Clusters in SDSS”, *Mont. Not. R. Astron. Soc.* 440 (2014) 3701.
35. P. Martí, R. Miquel, A. Bauer, E. Gaztañaga, “Photo-z Quality Cuts and their Effect on the Measured Galaxy Clustering”, *Mont. Not. R. Astron. Soc.* 437 (2014) 3490.
36. M. D. Olmstead et al., “Host Galaxy Spectra and Consequences for Supernova Typing from the SDSS SN Survey”, *Astron. J.* 147 (2014) 75.
37. H. Campbell et al., “Cosmology with Photometrically-Classified Type-Ia Supernovae from the SDSS-II Supernova Survey”, *Astrophys. J.* 763 (2013) 88.
38. J. Beringer et al. (Particle Data Group), “Review of Particle Physics”, *Phys. Rev. D* 86 (2012) 010001.
39. Ll. Galbany et al., “Type Ia Supernova Properties as a Function of the Distance to the Host Galaxy in the SDSS-II SN Survey”, *Astrophys. J.* 755 (2012) 125.
40. E. Gaztanaga et al., “Cross-correlation of spectroscopic and photometric galaxy surveys: cosmology from lensing and redshift distortions”, *Mont. Not. R. Astron. Soc.* 422 (2012) 2904.
41. L. Faccioli et al., “Reducing Zero-point Systematics in Dark Energy Supernova Experiments”, *Astropart. Phys.* 34 (2011) 847.
42. K. Nakamura et al. (Particle Data Group), “Review of Particle Physics”, *J. Phys. G* 37 (2010) 075021.
43. Colin M. McClelland et al., “The Subluminous Supernova 2007qd: A Missing Link in a Family of Low-Luminosity Type-Ia Supernovae”, *Astrophys. J.* 720 (2010) 704.
44. J. Sollerman et al., “First-Year Sloan Digital Sky Survey-II (SDSS-II) Supernova Results: Constraints on Non-Standard Cosmological Models”, *Astrophys. J.* 703 (2009) 1374.
45. E. Gaztañaga, R. Miquel and E. Sánchez, “First Cosmological Constraints on Dark Energy from the Radial Baryon Acoustic Scale”, *Phys. Rev. Lett.* 103 (2009) 091302.
46. N. Benítez et al., “Measuring Baryon Acoustic Oscillations along the line of sight with photometric redshifts: the PAU survey”, *Astrophys. J.* 691 (2009) 241.
47. Eric V. Linder and Ramon Miquel, “Cosmological Model Selection: Statistics and Physics”, *Int. J. Mod. Phys. D* 17 (2008) 2315.
48. C. Amsler et al. (Particle Data Group), “Review of Particle Physics”, *Phys. Lett. B* 667 (2008) 1.
49. Alex G. Kim and Ramon Miquel, “Measuring type Ia supernova distances and redshifts from their multi-band light curves”, *Astropart. Phys.* 28 (2007) 448.

50. Ramon Miquel, “Cosmology with type-Ia supernovae”, *J. Phys. A: Math. Theor.* 40 (2007) 6743.
51. W.-M. Yao et al. (Particle Data Group), “Review of Particle Physics”, *J. Phys. G: Nucl. Part. Phys.* 33 (2006) 1.
52. A.G. Kim and R. Miquel, “Optimal extraction of cosmological information from supernova data in the presence of calibration uncertainties”, *Astropart. Phys.* 24 (2006) 451.
53. D. Acosta et al. (CDF Collaboration), “Measurement of the moments of the hadronic invariant mass distribution in semileptonic  $B$  decays”, *Phys. Rev. D* 71 (2005) 051103.
54. E.V. Linder and R. Miquel, “Is Dark Energy Dynamical? Prospects for an Answer”, *Phys. Rev. D* 70 (2004) 123516.
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84. D. Decamp et al. (ALEPH Collaboration), “Determination of the Leptonic Branching Ratios of the  $Z^0$ ”, *Phys. Lett.* B234 (1990) 399.
85. R. Miquel, C. Mana and M. Martinez, “Higher order corrections to the process  $e^+e^- \rightarrow \nu\bar{\nu}\gamma$ ”, *Z. Phys.* C 48 (1990) 309.
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87. F. del Aguila, Ll. Garrido and R. Miquel, “On the Small Contribution to the  $Z^0$  Width of a New and Elusive Vector-like Down Quark Singlet”, *Phys. Lett.* B242 (1990) 503.
88. M. Martinez, R. Miquel and C. Mana, “Production of excited electrons in  $e^+e^-$  collisions”, *Z. Phys.* C 46 (1990) 637.
89. D. Decamp et al. (ALEPH Collaboration), “Determination of the Number of Light Neutrino Species”, *Phys. Lett.* B231 (1989) 519.

## 10 Talks Given in International Conferences and Workshops

1. International Conference on Indirect Evidence of New Energy Scales from Low Energy Precision Experiments, ICTP, Trieste (Italy), June 1987. Title: “Search for Compositeness in Radiative Bhabha Scattering Events”.  
(Plenary talk)

2. Workshop on QED Structure Functions, Ann Arbor, Michigan (USA), May 1989. Title: “Radiative Corrections to the Neutrino Counting Experiment: Signal and Background”.  
(Plenary talk)
3. Workshop on QED Structure Functions, Ann Arbor, Michigan (USA), May 1989. Title: “Helicity Amplitudes Calculations”.  
(Plenary talk by invitation)
4. NATO Workshop on Radiative Corrections, Brighton (United Kingdom), July 1989. Title: “Higher Order Corrections to the  $e^+e^- \rightarrow \nu\bar{\nu}\gamma$  Reaction”.  
(Plenary talk)
5. 1990 CERN School of Physics, Mallorca (Spain), September 1990. Title: “Electroweak LEP Results (Lineshapes and Partial Widths)”.  
(Plenary talk by invitation)
6. Workshop on Physics with  $e^+e^-$  Linear Colliders, Annecy (France), June 1991. Title: “Some Implications of Beamstrahlung on the Top Quark Cross Section Measurement”.  
(Plenary talk)
7. Workshop on Physics with  $e^+e^-$  Linear Colliders, Saariselkä (Finland), September 1991. Title: “Top Threshold Scan”.  
(Talk in parallel session)
8. XXVI Rencontres de Moriond, QCD and High Energy Hadronic Interactions, Les Arcs (France), March 1992. Title: “New  $\alpha_s$  measurements from ALEPH”.  
(Plenary talk representing the ALEPH Collaboration)
9. IVth Topical Seminar: The Standard Model and Just Beyond, San Miniato (Italy), June 1992. Title: “Measurement of  $\alpha_s$  in Hadronic Z Decays Using All-Orders Resummed Predictions”.  
(Plenary talk representing the ALEPH Collaboration)
10. Workshop on Physics with  $e^+e^-$  Linear Colliders, Annecy (France), February 1993. Title: “Measurements in the Top Threshold Region: the Top Momentum Distribution”.  
(Plenary talk)
11. XXIIInd International Winter Meeting on Fundamental Physics, Jaca (Spain), February 1994. Title: “The Physics Potential of LEP2” (2 talks).  
(Plenary talk by invitation)
12. 22nd INS International Symposium: Physics with High Energy Colliders, Tokyo (Japan), March 1994. Title: “Precision Studies of Electroweak Interactions at LEP”.  
(Plenary talk representing the ALEPH Collaboration)
13. 3rd CTEQ Summer School on QCD Analysis and Phenomenology, Lake Ozark, Missouri (USA), August 1994. Title: “Measurements of  $\alpha_s$  at LEP”.  
(Plenary talk by invitation)
14. International Conference “Beyond the Standard Model IV”, Lake Tahoe, California (USA), December 1994. Title: “Looking Beyond the Standard Model from LEP1 and LEP2”.  
(Plenary talk by invitation)
15. Meeting of the TESLA Collaboration, Gran Sasso (Italy), May 1995. Title: “Top Quark Physics at the Next Linear Collider and Comparison with LHC Potential”.  
(Plenary talk by invitation)
16. Workshop on Physics with  $e^+e^-$  Linear Colliders, Gran Sasso (Italy), June 1995. Title: “Top Quark Physics: Experimental Aspects”.  
(Plenary talk)

17. International Europhysics Conference on High Energy Physics, Brussels (Belgium), July 1995. Title: “Top Quark Physics at  $e^+e^-$  Linear Colliders”.  
(Parallel talk by invitation)
18. Workshop on Physics with  $e^+e^-$  Linear Colliders, DESY, Hamburg (Germany), August 1995. Title: “Top Quark Physics: Experimental Aspects”.  
(Plenary talk)
19. Workshop on Experimentation at High Energy Linear Colliders, DESY, Hamburg (Germany), April 1996. Title: “Top Quark Physics: Experimental Summary”.  
(Plenary talk by invitation)
20. Advanced School on Electroweak Physics, Maó, Menorca (Spain), June 1996. Title: “Physics Potential of LEP2 and NLC” (2 talks).  
(Plenary talk by invitation)
21. LEP Experiments’ Committee Open Session, CERN, Geneva (Switzerland), October 1996. Title: “Preliminary ALEPH Results at 161 GeV”.  
(Plenary talk representing the ALEPH Collaboration)
22. XXVth International Winter Meeting on Fundamental Physics, Formigal (Spain), March 1997. Title: “WW Physics at LEP2”.  
(Plenary talk by invitation)
23. International Conference “Beyond the Desert: Accelerator and Non-Accelerator Approaches”, Castle Ringberg, Tegernsee (Germany), June 1997. Title: “New Physics at LEP2”.  
(Plenary talk by invitation)
24. XXVIth International Meeting on Fundamental Physics, A Toxa (Spain), June 1998. Title: “Physics of  $e^+e^-$  Linear Colliders”.  
(Plenary talk by invitation)
25. Workshop on Physics and Detectors for DAPHNE, Frascati (Italy), November 1999. Title: “Future Prospects for CP Violation at Hadron Machines”.  
(Plenary talk by invitation)
26. Snowmass 2001: The Future of Particle Physics. Snowmass (USA), July 2001. Title: “Top Yukawa Coupling from the  $t\bar{t}$  Threshold”.  
(Talk in parallel session)
27. Linear Collider Workshop, Chicago (USA), January 2002. Title: “Top Yukawa Coupling from the  $t\bar{t}$  Threshold”.  
(Talk in parallel session)
28. Linear Collider Workshop, Chicago (USA), January 2002. Title: “Multi-parameter fits in  $t\bar{t}$  Threshold”.  
(Talk in parallel session)
29. International Conference on Hyperons and Heavy Flavours, Chicago (USA), July 2004. Title: “Measurement of the Moments of the Hadronic Invariant Mass Distribution in Semileptonic  $B$  Decays”.  
(Plenary talk representing the CDF Collaboration)
30. International Conference on Quantum Theories and Renormalization Group in Gravity and Cosmology, Barcelona (Spain), July 2006. Title: “Cosmology with Type-Ia Supernovae”.  
(Plenary talk by invitation)
31. XIX Rencontres de Blois, Matter and energy in the Universe: from nucleosynthesis to cosmology, Blois (France), May 2007. Title: “The SuperNova Acceleration Probe (SNAP)”.  
(Parallel talk by invitation)

32. XXXVIth International Meeting on Fundamental Physics, Baeza (Spain), February 2008. Title: “Dark Energy (An Observational Primer)”.  
(Two plenary talks by invitation)
33. International Workshop on Modern Cosmology, Bidasoa (Spain), July 2008. Title: “Measuring Baryon Acoustic Oscillations along the line of sight with photo-z’s: the PAU survey”.  
(Plenary talk by invitation)
34. Invisible Universe International Conference, Paris (France), June 2009. Title: “Measuring Baryon Acoustic Oscillations along the line of sight with photo-z’s: the PAU survey”.  
(Talk in parallel session representing the PAU Collaboration)
35. INT Workshop on the Future of Neutrino Mass Measurements: Terrestrial, Astrophysical, and Cosmological Measurements in the Next Decade, Seattle (USA), February 2010. Title: “Neutrino masses and mass limits in the PDG”.  
(Plenary talk by invitation)
36. Science with the optical-infrared telescopes at CAHA and ORM in the coming decade, Madrid (Spain), March 2012. Title: “PAUS (Physics of the Accelerating Universe Survey) and PAUCam at the William Herschel Telescope”.  
(Plenary talk)
37. International Workshop on Modern Cosmology: Early Universe, CMB, and LSS, Bidasoa (Spain), August 2012. Title: “The PAU Survey at the WHT”.  
(Plenary talk by invitation)
38. Meeting on Fundamental Cosmology, Fuerteventura (Spain), June 2014. Title: “The Dark Energy Survey: Status and First Results”.  
(Plenary talk by invitation)
39. Taller de Altas Energías, Bidasoa (Spain), September 2014. Title: “Observational Cosmology”.  
(Three plenary talks by invitation)
40. Dark Side of the Universe 2014, Cape Town (South Africa), November 2014. Title: “DES: First Results”.  
(Plenary talk representing the DES Collaboration)
41. APPEC Town Hall Meeting, Paris (France), April 2016. Title: “Dark Energy: Galaxy Surveys”.  
(Plenary talk by invitation)
42. 28th Rencontres de Blois: Particle Physics and Cosmology, Blois (France), June 2016. Title: “Large Scale Structure Surveys: Results from DES”.  
(Plenary talk representing the DES Collaboration)
43. XLV International Meeting on Fundamental Physics, Granada (Spain), April 2017. Title: “Cosmology from Large Galaxy Surveys”.  
(Plenary talk by invitation)
44. Photo-z workshop for large surveys, Sendai (Japan), May 2017. Title: “Clustering-based redshift estimation in DES”.  
(Plenary talk representing the DES Collaboration)
45. XLVI International Meeting on Fundamental Physics, Salamanca (Spain), April 2018 Title: “Future facilities (Telescopes)”.  
(Plenary talk by invitation)
46. XXXIX International Conference on High Energy Physics, Seoul (South Korea), July 2018. Title: “The Dark Energy Survey: cosmological results from the first year of observations”.  
(Parallel talk representing the DES Collaboration)

47. Symposium "Frontiers of Astroparticle Physics", Santa Cruz de La Palma (Spain), October 2018. Title: "Cosmology with galaxy surveys". (Plenary talk by invitation)
48. XLVII International Meeting on Fundamental Physics, Aranjuez (Spain), June 2019. Title: "Dark Energy: Cosmology from galaxy surveys". (Plenary talk by invitation)
49. XXV IFT Christmas Workshop, Cantoblanco (Spain), December 2019. Title: "Dark Energy: Cosmology with galaxy surveys". (Plenary talk by invitation)
50. 17th International Conference on the Dark Side of the Universe (DSU23), Kigali (Rwanda), July 2023. Title: "DES Year-3 cosmological constraints and comparison with KiDS, HSC and Planck: is there a  $\sigma_8$  tension?"
51. First meeting of the Plan Complementario AstroHEP, Zaragoza (Spain), June 2024 Title: "Summary and next steps" (Plenary summary talk)
52. XVII International Conference on Interconnections between Particle Physics and Cosmology (PPC 2024), Hyderabad (India), October 2024. Title: "Cosmological results from the first-year BAO measurements by the DESI Collaboration" (Plenary talk representing the DESI Collaboration)

## 11 Seminars Given

1. Universitat de Barcelona (Spain). March 1989. "Higher Order Radiative Corrections at LEP Energies".
2. Université de Clermont-Ferrand (France). March 1989. "Radiative corrections: an experimentalist's point of view".
3. Universitat Autònoma de Barcelona (Spain). May 1990. "ALEPH: a High Energy Physics Experiment at CERN".
4. Universitat Autònoma de Barcelona (Spain). May 1990. "Electroweak Results from ALEPH".
5. CERN (Switzerland). March 1992. "Measurement of  $\alpha_s$  in Hadronic Z Decays Using All-Orders Resummed Predictions".
6. Universitat Autònoma de Barcelona (Spain). March 1992. "Measurement of  $\alpha_s$  in Hadronic Z Decays Using All-Orders Resummed Predictions".
7. Universitat de Barcelona (Spain). April 1994. "Electroweak Measurements: from LEP1 to LEP2".
8. LAPP Annecy (France). October 1994. "Measurements of  $\alpha_s$  at LEP".
9. CERN (Switzerland). October 1996. "Preliminary ALEPH Results at  $\sqrt{s} = 161$  GeV".
10. Universitat de Barcelona (Spain). February 1997. "ALEPH results at LEP2".
11. Universitat Autònoma de Barcelona (Spain). April 1999. "The LHCb Experiment".
12. Lawrence Berkeley National Laboratory (USA). April 2000. "CP Violation in 2005: The LHCb experiment".
13. Universitat de Barcelona (Spain). February 2008. "Dark Energy and the PAU Project".
14. Université Montpellier II (France). November 2014. "The Dark Energy Survey: Status and First Results".

## 12 Organization of Conferences

1. Workshop on Physics with  $e^+e^-$  Linear Colliders, Hawaii (USA), May 1993. Organizer of a parallel session.
2. Workshop on Physics with  $e^+e^-$  Linear Colliders, Morioka (Japan), September 1995. Organizer of a parallel session.
3. International Europhysics Conference on High Energy Physics, Jerusalem (Israel), August 1997. Organizer of a parallel session.
4. IVth International Symposium on Radiative Corrections (RADCOR 98), Barcelona (Spain), September 1998. Member of the organizing committee.
5. XXVII International Winter Meeting on Fundamental Physics, Sierra Nevada (Spain), February 1999. Member of the organizing committee.
6. XXIII Trobades Científiques de la Mediterrània. Supernovae: Light in the Darkness, Maó, Menorca (Spain), October 2007. Member of the organizing committee.
7. CosmoRENATA 2013, València (Spain), June 2013. Member of the organizing committee.
8. DES Collaboration Meeting, St. Feliu de Guíxols (Spain), October 2013. Co-chair of the organizing committee.
9. 26th International Conference on Supersymmetry and Unification of Fundamental forces (SUSY 2018), Barcelona (Spain), July 2018. Member of the program committee.
10. European Physical Society Conference on High Energy Physics (EPS-HEP 2023), Hamburg (Germany), August 2023. Member of the International Organizing Committee, selecting venue, topics, plenary speakers, and conveners of parallel sessions.
11. DES Collaboration Meeting, S'Agaró (Spain), May 2024. Member of the local organizing committee.
12. First meeting of the Plan Complementario AstroHEP, Zaragoza (Spain), June 2024. Chair of the program committee.
13. European Physical Society Conference on High Energy Physics (EPS-HEP 2025), Marseille (France), July 2025. Member of the International Organizing Committee, selecting venue, topics, plenary speakers, and conveners of parallel sessions.