

CURRICULUM VITAE

- Name: FERNANDO CORNET.
- Date and place of birth: 30/08/1956, Barcelona.(Spain)
- Address: Departamento de Física Teórica y del Cosmos
Facultad de Ciencias
Universidad de Granada
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- E-mail: cornet@ugr.es
- Present position: Catedrático de universidad (Full Professor)
Universidad de Granada (Spain) since 19/3/2010
Director for Research Institutes and Centers and UGR Research Fund

ACADEMIC DATA

1.- Academic degrees

- Licenciado en ciencias físicas. June 1978 Universidad Autónoma de Barcelona (Spain).
Bachelor thesis: “Gauge Couplings for Meson Decays”. Advisor: Prof. Albert Bramon.
- Doctor en ciencias físicas. July 1982, Universidad Autónoma de Barcelona (Spain) Thesis: “Contact Terms for Electromagnetic and Strong Interactions of Hadrons”. Advisor: Prof. Albert Bramon.

2.- Previous Positions

- Academic years 1978/79, 1980/81 and 1981/82: Ayudante de clases prácticas (Teaching assistant). Departamento de Física Teórica, Universidad Autónoma de Barcelona.
- Academic years 1982/83, 1983/84 y 1984/85: Profesor titular interino (non-permanent associate professor). Veterinary School, Universidad Autónoma de Barcelona
- Academic years 1985/86 and 1986/87 Post-doc fellow at DESY (Hamburg)
- From 1/10/87 to 30/11/88 Post-doc fellow at Max Planck Institute für Physik (Munich)
- From 1/12/88 to 14/11/89: Profesor titular interino (non-permanent associate professor). Departamento de Física Teórica y del Cosmos, Universidad de Granada
- From 15/11/89 to 9/3/2010 Profesor titular (associate professor), Universidad de Granada.

3.- Long term visits to other institutes/universities (one month or longer)

- October-December 1984: DESY (Hamburg, Germany).
- July-September 1991: UCLA (Los Angeles, USA)
- August 1992: DESY (Hamburg, Germany).
- August 1996: DESY (Hamburg, Germany).
- July - August 2001: 45 days in Fermilab (USA).
- July 2007: One month in Univ. Nacional de La Plata (Argentina)

4.- Administration Positions at the University

- Secretary of Departamento de Física Teórica y del Cosmos from May 1989 to May 1990.

- Secretary of Instituto Carlos I de Física Teórica y Computacional from July 1993 to April 1994.
- Secretary of the Physics Committee academic years 1997/98 and 1998/99.
- Coordinator of the Physics Committee academic years 1999/2000 and 2000/01.
- Secretary of Departamento de Física Teórica y del Cosmos since the academic year 2001/02 until June 2011
- Coordinator of the Physics self-evaluation Committee of the University of Granada in the academic year 2001/02
- Physics ERASMUS Coordinator during the academic years 2001/02, 2002/03 and 2003/04
- Head of Departamento de Física Teórica y del Cosmos since June 2011 until September 2015.
- Director for Research Centres and Institutes and UGR Research Funds, since July 2015.

5.- List of Publications

- Physics Publications:
 1. Photoproduction Total Cross Section and Shower development.
Phys. Rev. D92 (2015) 114011,
with C. Garcia Canal, A. Grau, G. Pancheri and S. Sciutto.
 2. Photoproduction Models for Total Cross Section and Shower development.
Proc. of the 18th International Symposium on Very High Energy Cosmic Rays, EPJ Web Conf. 99 (2015) 10005.
with C. Garcia Canal, A. Grau, G. Pancheri and S. Sciutto.
 3. Pair Production of Two Higgs Doublet Model Light Higgs Bosons in gamma gamma Collisions.
Phys. Lett. B696 (2008) 58,
with W. Hollik.

4. Spin Dependence of Heavy Quark Fragmentation
Phys. Lett B662 (2008) 341,
with C.A. Garcia-Canal.
5. New Parametrizations for the Photon Structure Function
Acta Phys. Polon.B37 (2006) 663.
6. CJK-Improved 5 Flavor LO Parton Distributions in the Real Photon
Acta Phys. Polon. B35 (2004) 2215,
with P. Jankowski and M. Krawczyk.
7. A New 5 Flavor NLO Analysis and Parametrizations of Parton Distributions of the Real Photon.
Phys. Rev. D70 (2004) 093004,
with P. Jankowski and M. Krawczyk.
8. CJK-Improved 5 Flavor LO Parton Distributions in the Real Photon and their Experimental Uncertainties.
Nucl. Phys. Proc. Suppl. 126 (2004) 28,
with P. Jankowski and M. Krawczyk.
9. New 5-flavor LO analysis and parametrization of parton distributions in the real photon.
Phys. Rev. D 68 (2003) 014010,
with P. Jankowski, M. Krawczyk and A. Lorca.
10. TeV Strings and the Neutrino-Nucleon Cross Section at Ultrahigh Energies.
Phys. Rev. Lett. 86 (2001) 4235,
with J.I. Illana and M. Masip.
11. Four Fermion Contact Terms in Charged Current Processes and Large Extra Dimensions.
Phys. Rev. D61 (2000) 037701,
with M. Relaño and J. Rico.
12. Tests of Chiral Perturbation Theory at DAPHNE.
Acta Phys. Pol. B30 (1999) 3285.
13. Physics Beyond the Standard Model at HERA.
Acta Phys. Pol. B28 (1997) 2439,
with J. Rico.

14. Contact Terms in Charged Current Processes at HERA.
Phys. Lett. B412 (1997) 343,
with J. Rico.
15. Advanced School on Effective Theories,
World Scientific (Singapore, 1997) Editor,
with M.J. Herrero.
16. Chiral Perturbation Theory.
Acta Phys. Pol. 27 (1996) 1541.
17. $\gamma\gamma \rightarrow \pi\pi\pi$ to One Loop in Chiral Perturbation Theory.
Phys. Lett. B376 (1996) 186,
with P. Talavera, Ll. Ametller, J. Bijnens and A. Bramon.
18. Tau Pair Production Via Photon-Photon Collisions at the CERN
 e^+e^- collider LEP.
Phys. Rev. D 53 (1996) 1181,
with J.I. Illana.
19. Probing Anomalous $\gamma\tau\bar{\tau}$ Couplings in Two Photon Processes.
Proceedings of the Workshop Perspectives of Electroweak Interactions in e^+e^- Collisions, Ringberg Castle (Germany), Feb. 1995.
Ed. B. Kniehl. World Scientific (1995), p. 387,
with J.I. Illana.
20. Introduction to Chiral Perturbation Theory.
Proceedings of the First Colombian Workshop on Phenomenology, Medellin (Colombia), August 1994. ed. W. Ponce, p. 124.
21. The $Zb\bar{b}$ Vertex: Implications for the Standard Model and Beyond.
Nucl. Phys. B428 (1994) 61,
with W. Hollik and W. Mösle.
22. Non-Standard Tau Pair Production in Two Photon Collisions at LEP II and Beyond.
Nucl.Phys.Proc.Suppl.37B (1994) 193,
with J.I. Illana.
23. Testing the Anomalous $ZZ\gamma$ and $Z\gamma\gamma$ vertices in $e\gamma \rightarrow eZ$.
Proceedings of the workshop e^+e^- Collisions at 500 GeV: The Physics Potential; Ed. P.M. Zerwas; Part C, page 229 (1993).
24. Semileptonic π and K Decays and the Chiral Anomaly at One Loop.

- Phys. Lett. 303B (1993) 140,
with Ll. Ametller, J. Bijnens and A. Bramon.
25. Pseudogoldstone Boson Production in ep Collisions.
Phys. Lett. 281B (1992) 369,
with A. Bueno
 26. Chiral Perturbation Theory for $\eta \rightarrow \pi^0\gamma\gamma$.
Phys. Lett. B276 (1992) 185,
with Ll. Ametller, J. Bijnens and A. Bramon.
 27. Transition Form-Factors in π^0 , η and η' Couplings to $\gamma\gamma^*$.
Phys. Rev. D45 (1992) 986
with Ll. Ametller, J. Bijnens and A. Bramon.
 28. The Possibility of Using a Large Heavy Ion Collider For Measuring
the Electromagnetic Properties of the Tau Lepton.
Phys. Lett. 271B (1991) 256,
with F. del Aguila and J.I. Illana
 29. Chiral Perturbation Theory for γPPP processes.
UAB-FT-263/91, UG-FT-15/91 (Aparecerá en los Proceedings of
the Φ -Factory Workshop, Frascati), with A. Bramon, J. Bijnens
and Ll. Ametller.
 30. Measuring the Electromagnetic Properties of the W in Heavy Ion
Colliders,
Phys. Rev. Lett. 67 (1991) 1705,
with J.I. Illana.
 31. Contact Interactions and New Vector Bosons at LEP/LHC,
Proceedings of the Large Hadron Collider Workshop, Aachen 1990.
Eds. G. Jarlskog y D. Rein, CERN 90-10, ECFA 90-133 Vol. 2 p.
986,
with H.-U. Martyn.
 32. Higher Order Corrections to the Wess-Zumino Term in Chiral Per-
turbation Theory,
Proceedings of the XII Warsaw Symposium on Elementary Parti-
cle Physics, Kazimierz, 1989. Eds. Z. Ajduk, S. Pokorski and A.
Wróblewski. World Scientific (Singapore,1990) p. 343,
with J. Bijnens and A. Bramon.
 33. Three pseudoscalar-Photon Interactions in Chiral Perturbation
Theory,

- Phys. Lett. 237B (1990) 488,
with J. Bijnens and A. Bramon.
34. Chiral Perturbation Theory for Anomalous Processes,
Z. Physik C46 (1990) 599,
with J. Bijnens and A. Bramon.
35. New Gauge Bosons at ep Colliders,
Proceedings of the Snowmass Summer Study on Physics in 1990's,
Snowmass, 1988. Ed. S. Jensen. LBL. 1989, p. 259
36. New Particles in ep Collisions,
Proceedings of the Snowmass Summer Study on Physics in 1990's,
Snowmass, 1988. Ed. S. Jensen, LBL 1989, p. 195
with W.H. Smith et al..
37. Sensitivity of W' and Z' Searches at HERA,
Proceedings of the HERA workshop, Hamburg, Oct. 1987, Ed.
R.D. Peccei 1989, p. 771,
with R. Rückl.
38. Pseudoscalar Decays into Photon-Photon in Chiral Perturbation
Theory,
Phys. Rev. Lett 61 (1988) 1453,
with J. Bijnens and A. Bramon.
39. Some Exotic Physics at HERA,
Proceedings of the XV International Winter Meeting on Funda-
mental Physics, Sevilla Feb. 1987, Ed. F. Barreiro and J.L.
Sanchez-Gomez, p. 209.
40. Compositeness in ep Collisions at LEP-LHC,
Proceedings of The Workshop on Future Accelerators, La Thuile,
Jan. 1987. Vol II p. 287,
with R. Rückl.
41. Searches for a New Z' in ep Collisions at LEP-LHC,
Proceedings of The Workshop on Future Accelerators, La Thuile,
Jan. 1987. Vol II p. 190,
with R. Rückl.
42. Two Pion Production in Photon Photon Collisions,
Nucl. Phys. B296 (1988) 557,
with J. Bijnens.

43. Beyond The Standard Model,
Proceedings of The Workshop on Future Accelerators, La Thuile,
Jan. 1987. Vol. I p. 80.
44. Searching for a Neutral E_6 Gauge Boson at HERA,
Phys. Lett. 184B (1987) 263,
with R. Rückl.
45. Are there Quarks of Mass 23 GeV?,
Phys. Lett. 174B (1986) 224,
with E.W.N. Glover, K. Hagiwara, A.D. Martin and D. Zeppenfeld.
46. $SU(3)$ Breaking in Electromagnetic Interactions of Mesons From
Three Point Function Sum Rules,
Proceedings of The Workshop on Non-Perturbative Methods, Mont-
pellier, July 1985, Ed. S. Narison,
with E. Bagan and A. Bramon.
47. $SU(3)$ breaking in Pseudoscalar Meson Charge Radii From QCD
Sum Rules,
Z. Physik C32 (1986) 227,
with E. Bagan and A. Bramon.
48. Gluonium Contaminations in Tensor Mesons,
Z. Physik C28 (1985) 573,
with A. Bramon, R. Casas and J. Casulleras.
49. $SU(3)$ breaking in $K^* \rightarrow K\gamma$ From QCD Sum Rules,
Phys. Rev. D31 (1985) 2270,
with E. Bagan and A. Bramon.
50. Hadronic Gauge Couplings For $\rho' \rightarrow \rho\pi\pi$,
Z. Physik C26 (1984) 57,
with C. Ayala and A. Bramon.
51. Contact Terms in $\gamma\gamma$ Production of Baryons,
Phys Lett. 145B (1984) 297,
with E. Bagan and A. Bramon.
52. Contact Terms in $\gamma\gamma \rightarrow A_2\pi \rightarrow \rho\pi\pi$ Transitions,
Phys. Rev. D27 (1983) 1640
with E. Bagan y A. Bramon.

- 53. Born Model Predictions for $\gamma\gamma \rightarrow \rho^\pm\pi^\mp$,
Phys. Rev D25 (1982) 2306,
with E. Bagan and A. Bramon.
 - 54. Contact Terms in $\gamma\gamma \rightarrow \pi^+\pi^-\pi^+\pi^-$ Transitions,
Phys. Lett 107B (1981) 235,
with C. Ayala and A. Bramon.
 - 55. Hadronic Gauge Couplings in Meson Decays,
Z. Physik C3 (1979) 357,
with A. Bramon.
 - 56. Contact Terms in Electromagnetic Decays of Mesons,
Phys. Lett 83B (1979) 235,
with A. Bramon.
- Other publications:
 1. Brochure of The Physics Subject Area Group.
Tuning Educational Structures in Europe, with L.F. Dona dalle
Rose, E. Cunningham, M.C. do Carmo, M. Ebel, H. Ferdinande,
H. Geurts, W.G. Jones, E. Kierlik, F. Matteucci, J. Niskanen, J.
Nyman, P. Sauer, S. Steenstrup, O. Suk, L. Tugulea and E.G.
Vitoratos
 2. The Physics degree profiles in the Bologna Process
Tuning Educational Structures in Europe Final port Phase II.
Eds. J. González and R. Wagenaar, University of Deusto and
University of Groningen, 2005. Page 134, with L.F. Dona dalle
Rose, E. Cunningham, M.C. do Carmo, M. Ebel, H. Ferdinande,
H. Geurts, E. Gozzi, W.G. Jones, J. Niskanen, J. Nyman, J.C.
Rivoal, P. Sauer, S. Steenstrup and E.G. Vitoratos
 3. Título de grado en Física (“Libro Blanco”) (White book for the
Physics bachelor degree in Spain)
ANECA, 2004, with A. Méndez, B. Sanahuja, J.A. padró, V.
Colomer, A. Amengual, J.M. Alameda, L. Roso, R. Gómez, J.
Martínez, J. Bernabeu, V. Castillo, A. Poves, E. Anabitarte, A.
Vegas, V. Garzo, F. Mauricio, J.L. Castillo, A. Domínguez, A.
García, C. Casanova, J.M. Gómez, J. Lñares and F. Sarmiento.
 4. Physics Subject Area Group: Part 1 The Academics Evaluation
of the Specific Competences

- Tuning Educational Structures in Europe Final report Phase I. Eds. J. González and R. Wagenaar, University of Deusto and University of Groningen, 2003. Page 185, with L.F. Dona dalle Rose, E. Cunningham, M.C. do Carmo, M. Ebel, H. Ferdinande, H. Geurts, E. Gozzi, W.G. Jones, J. Niskanen, J. Nyman, J.C. Rivoal, P. Sauer, S. Steenstrup and E.G. Vitoratos
5. Physics Subject Area Group: Part 2 Operational Definitions of the Core Contents
Tuning Educational Structures in Europe Final report Phase I. Eds. J. González and R. Wagenaar, University of Deusto and University of Groningen, 2003. Page 185, with L.F. Dona dalle Rose, E. Cunningham, M.C. do Carmo, M. Ebel, H. Ferdinande, H. Geurts, E. Gozzi, W.G. Jones, J. Niskanen, J. Nyman, J.C. Rivoal, P. Sauer, S. Steenstrup and E.G. Vitoratos
 6. Learning Outcomes: Generic Skills
Proceedings of the Sixth EUPEN General Forum, Varna, September 2002. Eds. H. Ferdinande, T. Formesyn and E. Valke, with L.F. Dona dalle Rose, E. Cunningham, M.C. do Carmo, M. Ebel, H. Ferdinande, H. Geurts, E. Gozzi, W.G. Jones, J. Niskanen, J. Nyman, J.C. Rivoal, P. Sauer, S. Steenstrup and E.G. Vitoratos
 7. El proyecto Tuning Educational Structures in Europe
Proceedings on the Int. Seminar on The Role of Selfevaluation Procedures in the Institutional strength of High Education. Granada, November 2006. Eds. Luis Rico and José Gutierrez, page 111.
 8. El LHC: El nuevo acelerador de Ginebra (The LHC: The new Accelerator in Geneva). *Pasaje a la Ciencia* 12 (2009) 13.
 9. El Premio Nobel de Física 2013, una predicción confirmada. *Revista Española de Física* 27 (2013) 1.

6.- Seminars and talks

Physics

1. Fenomenología de los Bosones Octetes de Color,
Universidad Autónoma de Barcelona, November 1984.
2. Hay quarks pesados de 23 GeV de masa?,
Universidad Autónoma de Barcelona, December 1985.
3. Search for New Neutral Gauge Bosons at HERA,
DESY (Hamburg), March 1986.
4. Búsqueda de un nuevo Z' en HERA,
Universidad Autónoma de Barcelona, January 1987.
5. Contact Terms at HERA,
DESY (Hamburg), February 1987.
6. New Weak Bosons and Currents,
DESY Workshop, DESY (Hamburg), October 1987.

7. Physics at HERA,
Max Planck Inst. (Munich), February 1988.
8. η decays in Chiral Perturbation Theory,
Ludwig Maximilian Universität (Munich), May 1988.
9. New Gauge Bosons at Future ep Colliders,
Snowmass Summer Study on Physics in 1990's, Snowmass (USA), July 1988.

10. One Loop Corrections to the Wess-Zumino Term in Chiral Perturbation Theory,
Max Planck Institute (Munich), November 1988.
11. Higher Order Corrections to the Wess-Zumino Term in Chiral Perturbation Theory,
XII Warsaw Symposium on Elementary Particle Physics, Kazimierz (Poland), June 1989.

12. Higher Order Corrections to the Wess-Zumino Term in Chiral Perturbation Theory,
University of California at Los Angeles (USA), September 1991
13. Anomalous Electromagnetic Couplings of the W Boson,
University of Valencia (Spain), November 1992.
14. Bosones de gauge más allá del Modelo Estandar,
II Jornadas de Física de Altas Energías, Toledo (Spain), September 1993.
15. Non-Standard τ -pair Production at LEP II and Beyond,
Physics at LEP II and Beyond, Teupitz (Germany), March 1994.
16. Introducción a la teoría de perturbaciones chirales,
University of Antioquia, Medellín (Colombia), August 1994.
17. Probing Anomalous Couplings in Photon-Photon Collisions
Perspectives for Electroweak Interactions in e^+e^- Collisions, Ringberg
(Germany), February 1995.
18. Chiral Perturbation Theory
XIX School on Theoretical Physics, Bystra (Poland), September 1995.
19. Chiral Perturbation Theory,
DESY (Hamburg), August 1996.
20. Physics Beyond the Standard Model at HERA
XXI School on Theoretical Physics, Ustroń (Poland), September 1997.
21. Tests of Chiral Perturbation Theory at DAPHNE
XXIII School on Theoretical Physics, Ustroń (Poland), September 1999.
22. TeV Strings and UHE Cosmic Rays,
FERMILAB (USA), August 2001.
23. The Photon Structure Function. New Parametrization for the Parton
Content of the Photon
Latinamerican Workshop on Fundamental Interactions, Buenos Aires
(Argentina) July 2004.

24. New Parametrizations for the Photon Structure Function.
Photon 2005, Varsovia (Poland), September 2005.
25. The Partonic Content of the Photon.
National University of La Plata (Argentina), July 2007.
26. Introduction to Particle Physics
Instituto de Astrofísica de Canarias (La Laguna, Spain), July 2007.
27. Física en el LHC.
XXXII Bienal de Física (Ciudad Real, Spain) September 2009.
28. Study of Triple Neutral Gauge Boson Interactions in $e\gamma \rightarrow eZ$.
X Reunión de la Red Española de Futuros Colisionadores (Sevilla, Spain), February 2014.

Physics Education

1. Las Competencias de Física desde el Proyecto TUNING
Universidad de Sevilla (Spain), December 2004.
2. El Grado de Física en el Marco del EEES.
Universidad Autónoma de Madrid (Spain), March 2005
3. El EEES y los estudios de Física.
Universidad Autónoma de Barcelona (Spain), June 2005.
4. Los estudios de Física en el marco del EEES.
Universidad de La Laguna (Spain), March 2006.
5. El Espacio Europeo de Educación Superior y los Estudios de Física
Universidad de Granada (Spain), July 2006.
6. El Proyecto Tuning Educational Structures in Europe.
Universidad de Granada (Spain), September 2008
7. La Reforma de los Estudios de Física en España.
Universidad de La Plata (Argentina), September 2008

8. La Reforma de los Estudios de Física en España.
Universidad de Buenos Aires (Argentina), September 2008

7.- Doctoral Thesis supervised

1. José Ignacio Illana Calero,
Estudio de las propiedades electromagnéticas del bosón W y del leptón τ en colisiones de dos fotones.
April 1995

8.- Awards Received

- Award to the best Doctoral Thesis of the year, Univ. Autónoma de Barcelona, 1982.
- Award to the best research paper of the University of Granada in 2001.

14.- More Data

- Scientific Secretary and member of the organizing committee of NEUTRINO 92 (Granada), June 1992.
- Organizer of: Advance School on Effective Theories, Almuñecar (Granada), June 1995
- Organizer of: XXVII International Meeting on Fundamental Physics, Sierra Nevada (Granada), February 1999
- Organizer of: Taller de Altas Energias, Granada, May 2003
- Participation in the european project Tuning the Educational Structures in Europe, May 2001- May 2002
- Participation in the european project Tuning the Educational Structures in Europe Phase II, May 2003-May 2004

- Participation in the european project Tuning the Educational Structures in Europe Phase III, May 2005-Mayo 2006
- Coordinator of the Spanish Committee for the design of the new Curriculum for the Physics studies