

Part A. PERSONAL INFORMATION		CV date	20/09/2020
First and Family name	José Rodríguez Quintero		
Social Security, Passport, ID number		Age	
Researcher codes	WoS Researcher ID (*)	L-3229-2014	
	SCOPUS Author ID(*)		
	Open Researcher and Contributor ID (ORCID) **	0000-0002-1651-5717	

(*) At least one of these is mandatory

(**) Mandatory

A.1. Current position

Name of University/Institution	Universidad de Huelva		
Department	Department of Integrated Sciences		
Address and Country			
Phone number	(34)959219787	E-mail	Jose.rodriquez@dfaie.uhu.es
Current position	Catedratico de Universidad	From	05/04/2019
Key words	Nonperturbative QCD, hadron structure, parton distributions		

A.2. Education

PhD	University	Year
PhD. in Theoretical Physics	Universidad de Sevilla	12/09/1997
Degree in Physics	Universidad de Sevilla	31/07/1994

A.3. JCR articles, h Index, thesis supervised.

4 “sexenios”: 1995-1999, 2000-2006, 2007-2012, 2013-2018.

JCR articles: 75 (in Q1 sector), 135 (total).

Citations: 2614 (WoS), 4003 (inSPIRE). **Citations/year:** 207.2 (last 5 years, WoS)

h index: 30 (WoS), 36 (inSPIRE)

Thesis supervised: 2 (Feliciano de Soto Borrero, 2004; Pedro Naranjo Pérez, 2010) and 2 co-supervisions in SPHN/CEA (Cédric Mezrag, 2015; Nabil Chouika, 2018)

Head of the FQM-370 research group: “Molecular and subatomic Physics”

Part B. CV SUMMARY (max. 3500 characters, including spaces)

After obtaining the PhD. Degree with a thesis dissertation about the “fermion propagation in a first-order electroweak phase transition”, under the supervision of Prof. Manuel Lozano Leyva, in the University of Sevilla; I moved my interest to the Strong interactions and began a collaboration with the Lattice QCD group in Orsay (Laboratoire de Physique Théorique, CNRS, Paris) that is still ongoing. I was granted by the Ramón Areces foundation to pursue my training, at the post-doctoral level, in Orsay, from October 1998 until December 1999; and then got a temporary position in the University of Huelva (January 2000) where I began to develop a research activity in Particle Physics by heading the second group on the field in Andalusia. I enjoy a permanent position, as “Profesor Titular”, in the University of Huelva, since 2003. I have supervised, since then, two thesis dissertations on the field: about “the Infrared behaviour of the QCD Green functions”, in collaboration with Prof. Olivier Pène (Orsay, Paris), defended in 2004 by Feliciano de Soto Borrero; and about “SUSY scenarios for dark matter candidates including massive neutrinos”, in collaboration with Dr. M.E. Gómez (U. Huelva), defended in 2010 by Pedro Naranjo Pérez. I have been the main researcher (PI) of 4 research projects funded by the National Research Plan for Particle Physics and Accelerators (FPA), and participates in several others.

I made main research contributions by studying the nonperturbative running of QCD Green functions, where my collaborators from L.P.T. in Orsay and I discovered the necessity of



incorporating intrinsically nonperturbative corrections, properly described by gauge-dependent local condensates, within the framework of the Operator Product Expansion. We then applied these corrections for a reliable evaluation of the Strong running coupling, first in pure Yang-Mills (no dynamical quarks) and, finally, with two light and four realistic dynamical quark flavours (reported in literature for the first time).

I also made prominent research contributions by applying the Schwinger-Dyson equations (SDE) to the description of the deep low-momentum running of two-points QCD Green functions. My collaborators and I, together with other groups independently working on the subject, contributed decisively to establish a new paradigm concerning the low-momentum behaviour of the SDE solutions for the Green's functions. Both SDE and lattice QCD results happened then to be reconciled and strongly support that the gluon acquires dynamically a running mass. I developed international collaborations with Dr. J. Papavassiliou (U. Valencia), Dr. D. Binosi (ECT*, Italy), Dr. A.C. Aguilar (U. Campinas, Brazil), Dr. A. Bashir (U. Michoacan, Mexico), Dr. C.D. Roberts (ANL, USA), among other people, to dig into the definition of nonperturbative QCD effective couplings from the gauge-field Green's functions and study the effect of the light quarks on them and its implications.

Recently, I have also begun, in collaboration with Prof. C. D. Roberts and C. Mezrag (ANL, Chicago) and Dr. Hervé Moutarde (CEA, Saclay) a long-term research program in hadron phenomenology aiming at, mainly, the QCD-based computation of parton distributions for hadrons. The first steps of such a program generated interesting results for the pion's valence-quark parton distributions. As a collateral outcome of this collaboration, together with Dr. Hervé Moutarde, I am currently integrated in the international projects PARTONS and in STRONG 2020, funded by the H2020 EU program.

Part C. RELEVANT MERITS (Since January 2009)

C.1. Publications (including books)

1. “*Strong running coupling from the gauge sector of Domain Wall QCD with physical quark masses*”, S. Zafeiropoulos, Ph. Boucaud, F. De Soto, J. Rodríguez-Quintero, J. Segovia, **Physical Review Letters** **122**, **162002** (2019)
2. “*Nucleon-to-Roper electromagnetic transition form factors at large Q^2* ”, C. Chen, Y. Lu, D. Binosi, C.D. Roberts, J. Rodríguez-Quintero, J. Segovia, **Physical Review D** **99**, **034013**(2019)
3. “*Process-independent strong running coupling*”, D. Binosi, C. Mezrag, J. Papavassiliou, C. D. Roberts, J. Rodríguez-Quintero, **Physical Review D** **96**, **054026** (2017)
4. “*On the zero crossing of the three-gluon vertex*”, A. Athenodorou, D. Binosi, Ph. Boucaud, F. De Soto, J. Papavassiliou, J. Rodríguez-Quintero, S. Zafeiropoulos; **Physics Letters B** **761**, **444-449** (2016)
5. “*Basic features of the pion valence-quark distribution function*”, L. Chang, C. Mezrag, H. Moutarde, C.D. Roberts, J. Rodríguez-Quintero, P. Tandy; **Physics Letters B** **737**, **23-29** (2014).
6. “*Quark flavour effects on gluon and ghost propagators*”, A. Ayala, A. Bashir, M. Cristoforetti, D. Binosi, J. Rodríguez-Quintero; **Physical Review D** **86**, **074512** (2012)
7. “*The strong running coupling at the tau-mass and Z0-mass scale from lattice QCD*”, B. Blossier, M. Brinet, F. De Soto, X. Du, V. Morénas, O. Pène, K. Petrov, J. Rodríguez-Quintero; **Physical Review Letters** **108**, **262002** (2012)



8. "On the massive gluon propagator, the PT-BFM scheme and the low-momentum behaviour of decoupling and scaling DSE solutions", J. Rodríguez-Quintero; **Journal of High Energy Physics 1101, 105 (2011)**
9. "Nonperturbative comparison of QCD effective charges", A. C. Aguilar, D. Binosi, J. Papavassiliou, J. Rodríguez-Quintero, **Physical Review D 80, 080518 (2009)**
10. "Ghost-gluon running coupling, power corrections and the determination of Λ_{MS} ", Ph. Boucaud, F. De Soto, J.P. Leroy, A. Le Yaouanc, J. Micheli, O. Pène, J. Rodríguez-Quintero; **Physical Review D 79, 014508 (2009)**

Books:

- "Universos Paralelos", José Rodríguez Quintero; **ISBN: 978-84-473-8305-4**; RBA Coleccionables S.A., 2015.
- "Quarks y gluones", José Rodríguez Quintero; **ISBN: 978-84-473-8563-8**; RBA Coleccionables S.A., 2016.
- "¿Por qué hay algo en lugar de nada?", José Rodríguez Quintero y Mario Gómez Santamaría; **ISBN: 978-84-473-8829-5**; RBA Coleccionables S.A., 2017.
- "Más allá del bosón de Higgs", José Rodríguez Quintero; **ISBN: 978-84-473-9440-1**; RBA Coleccionables S.A.&National Geographic, 2018.

C.2. Research projects and grants (fully or partly enjoyed after January 2009)

1. **Title:** Efectos no perturbativos en colisionadores de alta energía y aplicaciones cosmológicas del Modelo Estándar y sus extensiones (**Ref:** FPA2006-13825);
Head researcher : José Rodríguez Quintero. **Role:** Head researcher
Funding agency: Ministerio de Ciencia y Tecnología.
Extension: 01/10/2006-30/09/2009 **Funds:** 37480.96 euros
3. **Title:** Fenomenología en Física de Partículas y Astropartículas (**Ref:** FPA2009-10773)
Head researcher: José Rodríguez Quintero. **Role:** Head researcher
Funding agency: Ministerio de Ciencia e Innovación.
Extension: 01/01/2010-31/12/2011 **Funds:** 19200 euros
3. **Title:** Fenomenología en Física de Partículas y Astropartículas (**Ref:** FPA2011-23781).
Head researcher: José Rodríguez Quintero. **Role:** Head researcher
Funding agency: Ministerio de Ciencia e Innovación.
Extension: 01/01/2012-31/12/2014 **Funds:** 53240.00 euros
4. **Title:** Fenomenología en Física de Partículas y Astropartículas (**Ref:** FPA2014-53631-C2-2-P).
Head researchers: José Rodríguez Quintero, Mario Gomez Santamaría.
Funding agency: Ministerio de Economía y Competitividad.
Extension: 01/01/2015-31/12/2017 **Funds:** 49610.00 euros
5. **Title:** Fenomenología en Física de Partículas y Astropartículas (**Ref:** PID2019-107844GB-C22).
Head researchers: José Rodríguez Quintero, Mario Gomez Santamaría.
Funding agency: Ministerio de Ciencia e Innovación.
Extension: 01/06/2019-31/12/2022 **Funds:** 71200.00 euros
6. **Title:** Centro nacional para Física de Partículas, Astropartículas y Nuclear (**Ref:** CPAN CSD2007-00042)
Main researcher: Antonio Pich Zardoya **Role:** Researcher
Funding agency: Ministerio de Ciencia e Innovación.
Extension: 01/10/2007-31/12/2014 **Funds:** 1000000 euros



7. **Title:** Flavianet: Entering the high precision era of flavour physics through the alliance of lattice simulations, effective field theories and experiment (**Ref:** MRTN CT-2006-035482-2)

Main researcher: Antonio Pich Zardoya **Role:** Head researcher

Funding agency: U.E. (FP6)

Extension: 01/10/2006-30/09/2014 **Funds:** 3700000 euros

C.3. Contracts

C.4. Patents

C.5. Appointments / Extended Visits

- Visiting Resercher. **LPT Orsay, CNRS, France** (15/07/2009-15/08/2009; 15/07/2010-31/07/2010; 15/07/2011-15/08/2011; 15/07/2013-30/07/2013; 01/08/2018-30/08/2018)
- Visiting Resercher. **SPhN/IRFU Saclay, CEA, France** (15/07/2014-15/08/2014; 15/07/2015-31/07/2015)

C.6. Organization of I+D Events

1. **Event:** I International Workshop on Nonperturbative QCD; October 1-5, 2012; Matalascañas (Huelva, Spain). **Role:** Local Organizing Committee (Director).
2. **Event:** II International Workshop on Nonperturbative QCD; September 30-October 3, 2014; Punta Umbría (Huelva, Spain). **Role:** Local Organizing Committee (Director).
3. **Event:** III International Workshop on Nonperturbative QCD; October 17-21, 2016; Sevilla (Spain). **Role:** Local Organizing Committee (Director).
4. **Event:** 35th International Symposium on Lattice Field Theory; June 18-24, 2017; Granada (Spain). **Role:** Local Organizing Committee.

C.7. Institutional responsibilities

(2010-2012) Director of the Master on “Nuclear Technology”, University of Huelva.

(2012-2017) Associate Dean of the Faculty of Experimental Sciences, University of Huelva.

(2017-2019) Director of Post-Graduated Studies, University of Huelva.

(2019-2020) Director of Research, University of Huelva.

(2020-) Vice-Chancellor of Research and Transfer, University of Huelva.

C.8. International Impact

- **Collaborators/Co-authors:** 39 from 11 different countries. Member of the Lattice Orsay Group and of two international collaborations: European Twisted Mass Coll. & PARTONS.

- **Talks in international conferences:** 28 in 12 countries (**Spain**,10,14,16,18; **France**, 10,12; **Italy**, 09,11,13,18; **Germany**,18; **USA**,12,15,17; **Australia**, 10; **Mexico**, 11,13,15,17; **China**, 13,15,17,18; **UK**, 14; **Brazil**, 14,16; **Portugal**, 16; **Greece**, 16)

- **Advisory Committee of Conferences:** 11 in 5 countries (**Mexico**, 13,15,17; **Spain**, 14,16,18; **Italy**, 11; **Brazil**, 14,16; **China**, 15,17)

- **Referee of Articles:** 7 Journals (Physical Review D, Physical Review C, Physical Review Letters, Journal of Physics G, Few Body Systems, Physics Letters B, Journal of High Energy Physics)