

## Employment

- 2018–Present **Assistant Professor of Physics**, *University of Maryland*, College Park, MD.  
2012–2018 **Postdoctoral Scholar**, *UC Santa Barbara*, Santa Barbara, CA.

## Education

- 2005–2012 **Ph.D. Applied Physics**, *Stanford University*, Stanford, CA.  
Advisor: Vera Lüth  
Dissertation: *Evidence for an excess of  $\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  decays*
- 1999–2004 **B.S. Electro-mechanical engineering**, *Universidad Pontificia de Comillas (ICAI)*, Madrid, Spain, 5-year degree, top academic record of the 2004 class.  
Advisors: Ángela Jiménez Casas, Leo Miguel González Gutiérrez  
Thesis: *Adaptive solution of differential equations using a wavelet basis: Application to the cooling of electronic components*

## Research

- 2018–Present **LHCb experiment**, *CERN LHC*, Geneva, Switzerland.
- Searches for Lepton Flavor Universality violation
  - Development of the readout electronics (PEPI) for the Upstream Tracker
  - Co-coordinator of the electronics work package for the Upstream Tracker
- 2012–2018 **CMS experiment**, *CERN LHC*, Geneva, Switzerland.
- Searches for Supersymmetry in final states with missing transverse momentum plus  $HH$  ( $\rightarrow b\bar{b}b\bar{b}$ ) [1, 2], one lepton [4, 5], or multiple jets [6, 7]
  - Deputy project manager for the CMS Cathode Strip Chambers (CSCs)
  - Coordinator of the CMS CSC upgrade for the high-luminosity LHC (Phase 2)
  - Main CSC editor of the TDR for the Phase-2 Upgrade of the CMS Muon Detectors [10]
  - Design, production, and firmware development for the CSC Optical DAQ MotherBoards
- 2006–2012 **BABAR experiment**, *SLAC PEP-II*, Menlo Park, CA.
- Measurement of an excess of  $\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  decays [3, 8, 9]
  - Overhaul of the *BABAR* hadronic  $B$  tagging algorithm
  - *BABAR* Drift Chamber operations manager and data quality expert

## Honors

- 2014 CMS Achievement Award for *Outstanding design and construction of the 72 Optical Data MotherBoards that control and read out the Digital CFEB electronics that were installed on ME1/1 chambers during LS1*
- 2005 National award in electro-mechanical engineering, 3<sup>rd</sup> best academic record (Spain)
- 2004 Extraordinary award for top academic record at Universidad Pontificia Comillas

## Publications

As a member of large experiments such as *BABAR* and CMS, I am the author of 595 published articles as of October 6, 2018. The standard practice in these collaborations is to publish articles listing all active members as authors, ordered alphabetically in most cases, to represent the common contributions to the development and running of the machine, as well as to the internal review of all the results. Below are listed only articles where I have played a significant role in the analysis. The full list of my publications is available at <http://inspirehep.net/author/profile/M.Franco.Sevilla.1>

### Selected peer-reviewed articles

- [1] CMS Collaboration. *Search for Higgsino pair production in pp collisions at  $\sqrt{s} = 13$  TeV in final states with large missing transverse momentum and two Higgs bosons decaying via  $H \rightarrow b\bar{b}$ .* Phys. Rev. D 97 (2018), 032007. arXiv: 1709.04896 [hep-ex].
- [2] CMS Collaboration. *Combined search for electroweak production of charginos and neutralinos in proton-proton collisions at  $\sqrt{s} = 13$  TeV.* J. High Energy Phys. 03 (2018), 160. arXiv: 1801.03957 [hep-ex].
- [3] G. Ciezarek et al. *A Challenge to Lepton Universality in B Meson Decays.* Nature 546 (2017), 227–233. arXiv: 1703.01766 [hep-ex].
- [4] CMS Collaboration. *Search for Supersymmetry in pp Collisions at  $\sqrt{s} = 13$  TeV in the Single-Lepton Final State Using the Sum of Masses of Large-Radius Jets.* Phys. Rev. Lett. 119. (2017), 151802. arXiv: 1705.04673 [hep-ex].
- [5] CMS Collaboration. *Search for supersymmetry in pp collisions at  $\sqrt{s} = 13$  TeV in the single-lepton final state using the sum of masses of large-radius jets.* J. High Energy Phys. 08 (2016), 122. arXiv: 1605.04608 [hep-ex].
- [6] CMS Collaboration. *Search for supersymmetry in multijet events with missing transverse momentum in proton-proton collisions at 13 TeV.* Phys. Rev. D 96. (2017), 032003. arXiv: 1704.07781 [hep-ex].
- [7] CMS Collaboration. *Search for supersymmetry in the multijet and missing transverse momentum final state in pp collisions at 13 TeV.* Phys. Lett. B 758 (2016), 152–180. arXiv: 1602.06581 [hep-ex].
- [8] *BABAR* Collaboration. *Measurement of an Excess of  $\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  Decays and Implications for Charged Higgs Bosons.* Phys. Rev. D 88. (2013), 072012. arXiv: 1303.0571 [hep-ex].
- [9] *BABAR* Collaboration. *Evidence for an excess of  $\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  decays.* Phys. Rev. Lett. 109 (2012), 101802. arXiv: 1205.5442 [hep-ex].

## Technical Design Reports

- [10] CMS Collaboration. *The Phase-2 Upgrade of the CMS Muon Detectors*. CERN-LHCC-2017-012. CMS-TDR-016. Main editor of Chapter 4 on CSCs. Geneva: CERN, Sept. 2017.

## Proceedings

- [11] Manuel Franco Sevilla on behalf of the CMS Collaboration. *Searches for supersymmetry in leptonic final states at CMS. Proceedings, 51st Rencontres de Moriond on QCD and High Energy Interactions: La Thuile, Italy, March 19-26, 2016*. ARISF. ARISF, 2016, 51–54.
- [12] Manuel Franco Sevilla on behalf of the BABAR Collaboration. *Measurements of  $B \rightarrow D^{(*)}\tau\nu$  and  $V_{ub}$  at BaBar. Proceedings, XXIst International Europhysics Conference on High Energy Physics (EPS-HEP2011)*. Proceedings of Science. Proceedings of Science, 2012.

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## Presentations

- 2018 *Searching for Physics Beyond the Standard Model in the LHC Era*  
University of Maryland HEP seminar, College Park, MD, March 2018  
Southern Methodist University seminar, Dallas, TX, February 2018  
Northeastern Department of Physics Colloquium, Boston, MA, February 2018
- 2018 *Lecture series on the CMS CSC electronics and ODMB hardware/firmware*  
CERN, Geneva, Switzerland, Spring 2019
- 2018 *CSC upgrade: schedule, R&D, risks, costs, and manpower*  
*Risk management for the Phase-2 upgrade of the CMS muon detectors*  
*Personnel needs and risk management for the Phase-2 upgrade of the CMS muon detectors*  
UCG review of the TDR for the Phase-2 Upgrade of the CMS Muon Detectors, Jan 2018
- 2017 *Design, R&D, and installation of the Phase-2 upgrade of the CMS muon detectors*  
*Radiation hardness of the electronics for the Phase-2 upgrade of the CMS muon system*  
*CSC upgrade: design optimization, R&D, schedule, and milestones*  
LHCC review of the TDR for the Phase-2 Upgrade of the CMS Muon Detectors, Fall 2017
- 2017 *Strategies for Searches of BSM Physics in the XXI Century*  
LBNL Research progress meeting, Berkeley, CA, February 2017  
CU Boulder seminar, Boulder, CO, February 2017
- 2016 *SUSY searches in leptonic final states at CMS*  
Rencontres de Moriond, QCD and high energy interactions, La Thuile, Italy, March 2016

- 2012–2013 *Evidence for an excess of  $\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  decays and implications for 2HDMs*  
 Cornell LEPP Journal Club seminar, Ithaca, NY, May 2013  
 Fermilab Joint experimental-theoretical seminar, Batavia, IL, March 2013  
 University of Illinois at Urbana-Champaign, Champaign, IL, November 2012  
 Universität Bonn seminar, Bonn, Germany, September 2012  
 CERN seminar, Geneva, Switzerland, September 2012  
 UCSB seminar, Santa Barbara, CA, July 2012  
 SLAC seminar, Menlo Park, CA, July 2012
- 2012 *Semileptonic B decays at BABAR*  
 HEP2012, Valparaiso, Chile, January 2012
- 2011 *Measurements of  $\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  and  $V_{ub}$  at BABAR*  
 EPS-HEP2011, Grenoble, France, July 2011
- 2011  *$\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  measurement at BABAR*  
 APS April Meeting, Anaheim, CA, May 2011
- 2009 *Measurement of the  $B \rightarrow D^{**}\ell\nu$  and  $\bar{B} \rightarrow D^{(*)}\tau^{-}\bar{\nu}_{\tau}$  decays*  
 DPF Meeting, Detroit, MI, May 2009
- 2009 *Gravitation: Introduction to the Einstein equations*  
 SLAC Association for Student Seminars, Menlo Park, CA, October 2009

### Presentations by Trainees

- 2009 *Development of the Monitoring System for the Electronics Upgrade Testing at LHCb*, poster presented by Nitzan Hirshberg  
 APS Conference for Undergraduate Women in Physics (CUWiP), College of William and Mary, Williamsburg, VA, January 2019  
 Award for top-5 poster

## Teaching and Mentorship

### Teaching

- Spring 2019 PHYS 371, *Modern Physics*

### Student mentorship at the University of Maryland

- 2018–Present Yipeng Sun  
 2019–Present Benjamin Flaggs (undergraduate)  
 2018–Present Nitzan Hirshberg (undergraduate)

### Student mentorship at UCSB/SLAC

- 2018 Sicheng Wang  
 2016–2018 Alex Dorsett  
 2014–2017 Ryan Heller

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- 2014–2017 Rohan Bhandari
- 2013–2017 Adam Dishaw
- 2013–2017 Jack Bradmiller-Feld
  - 2016 Marvin Qi (undergraduate)
  - 2013 Leonora Vesterbacka (undergraduate)
  - 2010 Chiara Piacentini (undergraduate)

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## Service

- 2015–Present Referee for Physical Review Letters
  - 2018 Co-organizer of the *CMS GEM/CSC Forward Muon Upgrade Workshop* Texas A&M, College Station, TX, April 2018
- 2012–2018 Served in internal review committees for *BABAR* and CMS analyses

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## Outreach

- 2019 Judge for the *15<sup>th</sup> Annual USM PROMISE AGEP Research Symposium & Professional Development Conference: The Future of STEM* aimed at graduate students from underrepresented groups in the University System of Maryland, February 2019.
- 2016 *Particle physics day*, helped hosting at UCSB a class of about 50 students from Santa Barbara Middle School, gave them a virtual tour of CMS, and build a salad-bowl particle accelerator, November 2016.
- 2008–2012 *SLAC Association for Student Seminars*, founded and ran with H. Wells Wulsin the first student organization at SLAC. January, 2008.
- 2007–2008 *Harvard Club*, helped families of middle school students, some non-English speaking, fill out applications for more-performing schools. East Palo Alto Charter School, East Palo Alto, CA. Fall 2007-2008.
- 2007 *Science bus*, science class tutor and science fair judge for middle school students. East Palo Alto Charter School, East Palo Alto, CA. 2007.
- 2003 *Volunteer Cara*, monitor at a camp for seriously ill children. Barretstown Gang Camp, County Kildare, Ireland. August, 2003.