

Julián Bautista

Observational Cosmologist

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Research Experience

Postdoctoral Researcher • 2020 to present
@ Aix-Marseille Université, Centre de Physique de Particules de Marseille, France

Research Fellow • 2017 to 2020
@ University of Portsmouth, United Kingdom

Postdoctoral Researcher • 2014 to 2017
@ University of Utah, United States of America

Graduate Student • 2011 to 2014
@ Laboratoire Astroparticule et Cosmologie (APC), France

Education

Ph.D., Physics • September 2014
@ Université Paris Diderot, France
Title of thesis: Baryon Acoustic Oscillations in the Large Scale Structures of the Universe as seen by the Sloan Digital Sky Survey

M.S., Particle Physics and Cosmology • September 2011
@ Université Paris Diderot, France

Ingénieur de l'École Polytechnique • August 2010
@ École Polytechnique, France

B.S., Physics • August 2010
@ Universidade de São Paulo, Brazil

Mentoring

Computing internship M2 • one month in 2021
Title of project: Cosmology with Type-Ia supernovae

Science first-steps M1 • one month in 2020
Title of project: Dark-energy constraints with BAO and supernovae

Main supervisor of Ph.D. candidate Samantha Youles • 2017 to present
Title of thesis: Weak lensing in the Lyman-alpha forest

Co-supervisor of Ph.D. candidate Vikrant Kamble • 2015 to 2017
Title of thesis: Measuring the optical depth of the Lyman-alpha forest

Teaching

Thermodynamics (64 h) • 2013 - 2014
Physics of Materials (64 h) • 2012 - 2013
Electronics (64 h) • 2011 - 2012
@ Institut Universitaire de Technologie, France

Cosmology for high-school teachers (15 h) • 2011 - 2014
@ Observatoire de Paris, France

Responsibilities

Journal Club "Show Plot" organiser • 2021 to present
@ Centre de Physique des Particules de Marseille, France

Lead Data Scientist of the eBOSS Survey • 2016 to 2020

Architect of the SDSS • 2015 to 2020

Seminar organiser • 2018 to 2020
@ Institute of Cosmology and Gravitation, United Kingdom

Journal Club organiser • 2011 to 2014
@ Laboratoire Astroparticule et Cosmologie, France

Research Skills

Cosmology : dark energy, baryon acoustic oscillations, clustering, redshift-space distortions, weak-lensing, supernovae
Data analysis, mathematical and statistical modelling
Spectroscopic data reduction
Work within large international collaborations
Public data release preparation and documentation
Python, Java, C, C++, IDL

Collaborations

Sloan Digital Sky Survey III - Baryon Oscillation Spectroscopic Survey (BOSS)
Sloan Digital Sky Survey IV - extended BOSS (eBOSS)
Dark Energy Spectroscopic Instrument (DESI)
Euclid Consortium
Zwicky Transient Facility (ZTF)
Rubin Observatory

Languages

English - fluent
French - fluent
Spanish - fluent
Portuguese - fluent

Invited Schools as Lecturer

From Pixel to Cosmology in the 2020s • 2020
@ Quy Nhon, Vietnam
Topic: Cosmology with the intergalactic medium

Mexican AstroCosmoStatistics School • 2019
@ Leon, Mexico
Topic: Cosmology with the Lyman-alpha forest

La Plata International School on Astronomy and Geophysics • 2018
@ La Plata, Argentina
Topic: Large-scale structures with the Lyman-alpha forest

Invited Conferences

Cosmology from Home • 2020
@ cosmologyfromhome.com
Title: The Cosmological Implications from eBOSS - 20 Years of Cosmology with SDSS

235th American Astronomical Society Meeting • 2020
Special session on final eBOSS cosmological results
@ Honolulu, United States of America
Title: Spectral Reductions, Redshifts, and Catalogs for Cosmology

Mock Córdoba: galaxy formation for gravity and cosmology • 2019
@ Córdoba, Argentina
Title: Simulations for the Lyman- α forest

53st Rencontres de Moriond • 2018
@ La Tuile, Italy
Title: Baryon Acoustic Oscillations at $z = 0.72$ with the eBOSS Luminous Red Galaxies

CosmoSafari • 2017
@ Hluhluwe, South Africa
Title: extended Baryon Oscillation Spectroscopic Survey: first results

51st Rencontres de Moriond • 2016
@ La Tuile, Italy
Title: BAO Correlations at $z = 2.3$ with SDSS DR12 Lyman- α forests

Rencontres du Vietnam Cosmology • 2015
@ Quy Nhon, Vietnam
Title 1: The extended Baryon Oscillation Spectroscopic Survey
Title 2: BAO in the Lyman- α forests of BOSS quasars

BOSS workshop at American Physical Society • 2015
@ Baltimore, USA
Title: BAO in the Lyman- α forests of BOSS quasars

Outreach Events

Stargazing • 2020
@ Portsmouth, United Kingdom

Stargazing • 2019
@ Portsmouth, United Kingdom

Café Scientifique • 2018
@ Portsmouth, United Kingdom

Dancing with the Universe • 2018
@ Portsmouth, United Kingdom

Fête de la Science • 2012
@ Paris, France

References

Kyle Dawson (kdawson@astro.utah.edu)
@ University of Utah, USA

Will Percival (will.percival@uwaterloo.ca)
@ University of Waterloo, Canada

Julien Guy (jguy@lbl.gov)
@ Lawrence Berkeley National Lab, USA