

José-Alberto Vázquez | Brookhaven National Lab, U.S.

Department of Energy

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Current Position

Brookhaven National Lab, U.S. Department of Energy.

Post-doctoral Research Associate. Prof. A. Slosar.

NY, US

Oct.2013 -

I started my career as a theoretical cosmologist and slowly moving to statistics, astrophysics and data analysis. I am a post-doctoral research associate at the Brookhaven National Lab (BNL), and member of the Sloan Digital Sky Survey (SDSS). My current interests are mainly focussed on the construction of a map of the universe based on the statistical properties of the Galaxies observed through the SDSS survey; on the parameter estimation and model selection of cosmological models through Bayesian statistical techniques.

Interests.....

Programming, Data analysis, MCMC, Bayesian Statistics, Cosmology.

[Website](#), [LinkedIn](#), [GitHub](#)

Education and Work Experience

KICC, University of Cambridge.

Ph.D. in Astrophysics, Prof. A. Lasenby and Prof. M. Hobson.

Cambridge, UK

2009-2013

“Constraining alternative cosmological models with current and future observations”.

We present Bayesian techniques -Bayesian evidence, nested sampling and neural network algorithms- to compare cosmological models in the light of the currently available data and forecasts for the next generation of experiments.

DAMTP, University of Cambridge.

MASt. in Mathematics, Dr. A. Challinor.

Cambridge, UK

2008-2009

Physics Department, CINVESTAV.

M.Sc. in Physics, Prof. T. Matos.

DF, MX

2005-2007

Faculty of Sciences, UAEMor.

B.Sc. in Physics, Prof. T. Matos.

Morelos, MX

2000-2005

Research Internships.....

Physics Department, CINVESTAV.

Visiting Researcher, hosted by Prof. T. Matos.

DF, MX

Jun-Oct.13'

Physics Department, CINVESTAV.

Graduate Research Assistant, hosted by Prof. T. Matos.

DF, MX

2007-2008

Friedrich-Schiller-Universität Jena.

Short-term research visitor, hosted by Prof. B. Bruggmann.

Jena, DE

Jun-Sept.06'

Selected Awards & Scholarships

2015: Invited for a plenary talk on behalf of the BOSS collaboration to the APS meeting.

2014: Invited for a plenary talk on behalf of the BOSS collaboration to the SDSS-IV meeting.

2013: National System of Researchers, Level 1 (SNI 1).

2013: PhD award for academic purposes, Cavendish Laboratory, Cambridge.

2012: Tutorial award for academic purposes, St Edmund's College, Cambridge.

2012: American Alumni award, for traveling to the US for studies. St Edmund's College, Cambridge.

2008-2012: SEP Excellence program scholarship, complementary scholarship.

2008-2012: CONACyT full scholarship, for study towards a MASt and PhD, U. of Cambridge.

2006: Research grant for young scientists. *Awarded by the German Academic Exchange Service (DAAD).*

2005-2007 : CONACyT full scholarship, for study towards a Master, CINVESTAV.

2004-2005: Undergraduate Research Assistantship (from SNI-III), UAEM-CINVESTAV.

2004 : Undergraduate Teaching Assistantship, UAEM.

Press Release.....

07.2016: US Department of Energy: Dark Energy Measured With Record-Breaking Map of 1.2 Million Galaxies [link](#)
07.2016: LBNL, Berkeley Lab: Dark Energy Measured with Record-Breaking Map of 1.2 Million Galaxies [link](#).
07.2016: Physicsworld: Dark-energy study maps 1.2 million galaxies in the early universe [link](#).
04.2015: APS meeting on behalf of the BOSS Collaboration
06.2012: Talented Mexicans abroad. TV. short interview (Televisa)

Academic experience

Publications : Author of 23 publications in distinguished journals, three conference proceedings and two science review papers. Over half of the papers as a principal author, and two of them leading a collaboration of more than a hundred author-paper. For further details and citations: [Google Scholar](#), [Inspire](#), [Research gate](#)

Invited talks and travel grants: I have been awarded with travel grants to attend conferences and workshops. Some of the institutions include: ICTP, Trieste, IT; Cambridge, UK; SLC, UT, USA; Cabo, MX; Harvard, MA, USA; Passo del Tonale, IT; Stanford, CA, USA; AIE, Berlin, DE; Ensenada, MX; CMU, PA; Aspen, CO; ITU, Istanbul; Berkeley, CA; UNAM, MX.

Organization: Workshop Organizer: "Statistical and Numerical methods in Cosmology" (50 participants), IF, UNAM. Mini-workshop Organizer: "Overview to CAMB and CosmoMC" (15 participants), ININ. Seminar group Organiser: "Geometry and Gravitation", CINVESTAV. Seminar group Organizer: "Cosmology, Astrophysics and Numerical relativity", CINVESTAV.

Hacking

08.2016: PyData. Chicago, IL, US
07.2016: PyGotham & Database Camp. UN. NY, US
06.2016: 8th Astronomical Data Analysis Summer School. Chania, GR
01.2015: Symposium and Hack Week on data-intensive cosmology. Berkeley, CA, US
04.2015: SciCoder 6 Workshop. NYU, US

Skills and Interests

Programming Languages: Python, C/C++, Fortran, R, Bash Scripting
Maths: Maple, Mathematica, Matlab (basic)
Op. Systems: Linux, Windows, Mac OS X
Databases: MySQL, SQLite
Useful: Latex, HTML, CSS, Gnuplot, Git, SVN

Packages, libraries and frameworks.....

Python: Numpy, Pandas, Scipy, Scikit-learn, Beatiful Soup, Matplotlib, Bokeh, Seaborn, Flask.
R: dplyr, Main ones for Stats and ML, ggplot2, Shiny
C/C++, Fortran: LAPACK, OpenMP, MPI
HPC Clusters: NERSC(LBNL), Astro (BNL), Darwin (Cambridge), LaSuma-(CINVESTAV)

Cosmology.....

Contributions: MCMC for BAO analysis for the BOSS collaboration (Python) - [SimpleMC](#)
. Massively parallelizable Gaussian Embedding Sampling (Python) - [GM algorithm](#)
. Model Independent Bayesian Reconstruction (Fortran) - [NP-CAMB](#)
Lyman- α analysis for the BOSS collaboration (C++) - [Cosmology](#)

Non-Academic Projects.....

Scraping the web, Using APIs, Data manipulation with Pandas and SQL, Playing with Stats and ML algorithms and Visualizations. For further details see: [GitHub](#), [Bitbucket](#).

Meetups: I regularly attend NYC meetups with keywords such as Python, R, SQL, Data science.

Others.....

Languages: Spanish (Native); English (Fluent); German (Elementary).
Sports: Football (participation on national tournaments), Squash, Climbing, Jogging, Cycling.
Organiser of the national football tournament of Mexican Societies in UK (05.2010).
Others: Reading: Economy, Science, Science Fiction; Board games: Chess, Backgammon, Poker.