José-Alberto Vázquez

Brookhaven National Lab, U.S. Department of Energy

Current Position

Oct.2013 -	**Post-doctoral Research Associate**,	*Brookhaven National Lab*, NY, USA.

Member of the SDSS-III/SDSS-IV collaboration.

Project: *"Cosmological Implications of BAO measurements and Lyman-α forest analysis"*

My current research focuses on Data analysis of the Lyman-α forest observed through BOSS; on the parameter estimation and model selection of different Dark Energy and Inflationary models.

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

Education and Work Experience

2009-2013	**Ph.D. in Astrophysics**,	*KICC*, University of Cambridge, UK.

"Constraining alternative cosmological models with current and future observations". Here we present advanced Bayesian techniques,the evidence and nested sampling algorithms, to compare cosmological models in the light of the currently available data and forecasts for the next generation of experiments.

2008-2009	**MASt. in Mathematics**,	*DAMTP, University of Cambridge, UK*.

"Constraining cosmological Inflation". With the use of current and future surveys, we show constraints on the Inflationary parameters that allow us to make the connection between the theoretical and observational cosmology.

2005-2007	**M.Sc. in Physics**,	*Physics Department*, CINVESTAV, MX.

"Dynamical systems in Scalar Field Cosmologies". In this work, by using the dynamical systems formalism, we study scalar fields as the main candidates of Dark Matter.

2000-2005	**B.Sc. in Physics**,	*Faculty of Sciences*, UAEMor, MX.

"Galaxy formation with scalar-field dark matter". We present the general picture of the Dark matter and study several candidates.

Research Internships

Jun-Oct.13'	**Visiting Researcher**,	*Physics Department, CINVESTAV*, MX.

Mentoring three master students in their final projects, and gave a lecture about 'Inflationary cosmology' in the physics department.

2007-2008	**Graduate Research Assistant**,	*Physics Department*, CINVESTAV, MX.

"Cosmological models with dynamical systems". Prof. T. Matos.

Jun-Sept.06'	**Short-term research visitor**,	*Friedrich-Schiller-Universitat*, Jena, DE.

"Numerical methods in Cosmology". During this visit I learnt and worked with numerical techniques to solve basic gravitational wave equations.

Selected Awards & Scholarships

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, University 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.

Affiliations

2015 –	Member of the APS, AAS.
2014 –	Member of the Advisory Committee for CONACYT projects (RCEA), by invitation.
2013 –	Member of the SDSS-III/SDSS-IV collaboration, as part of the BOSS/eBOSS experiment.
2013 –	National System of Researchers, Level 1 (SNI 1).
2012 –	Committee member of the Mexican Cambridge Society.
2006 –	Member of the Institute advanced of cosmology, `http://www.iac.edu.mx/`

Publications & Academic experience

Publications I am author of more than 15 publications in distinguished journals, two conference proceedings and two science review papers. Over half of the papers I am a principal author, and in one of them A. Slosar and I guided the collaboration for a more than a hundred authors paper.

* For further details and citations: Google Scholar, Inspire, Research gate

Hacking (01.2015) Symposium and Hack Week on data-intensive cosmology. Berkeley, CA, USA. link
(04.2015) SciCoder 6 Workshop. NY, USA. link
Statistical methods for cosmology, Astrostatistics and R (Eric Feigelson, PennState U.)
Applied Bayesian Statistics - with R (David Spiegelhalter, Cambridge)
Bayesian methods in Cosmology (Mike Hobson -PhD advisor - Cambridge)

Invited talks I have been invited to give several talks in different institutions, some of them include: APS Meeting, MD, USA. / CMU, PA, USA. / Aspen, CO, USA. / ITU, Istanbul, TR. / Berkeley, CA, USA. / UNAM, MX / CINVESTAV, MX / Cambridge, UK.

Travel grants I have also been awarded with several travel grants to attend conferences and workshops, some of their locations 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.

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

Skills and Interests

I have been involved in several projects where programming skills are a key factor. Some of the programming languages and software that I used the most, include:

Programming	Fortran 90, C/C++, Python, basic R
Maths	Maple, Mathematica, Matlab.
Parallel	OpenMP, MPI, mpi4py
Useful	Git/SVN, Latex, Markup
Cosmo	CAMB, CosmoMC, MultiNest, CosmoNet, SimpleMC.
Contributions	SimpleMC (MCMC for BAO analysis in BOSS), GE algorithm (Sampling Algorithm)
	Cosmology (BOSS Lyman-α analysis), NP-CAMB (Bayesian Reconstruction).

* For further details see: GitHub, Bitbucket

Others

Languages	Native Spanish; fluent English; elementary German.
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.
Extra	Online Stocks/ETFs trader.