

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.

Publications & Academic experience

- Publications** I am an author of more than 15 publications in distinguish journals, two conference proceedings and two science review papers. Seven of the papers as a principal author, and 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
(04.2015) SciCoder 6 Workshop. NY, USA
- 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

- 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, 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.

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/>