Sreekumar Thaithara Balan

Department of Physics and Astronomy
University College London
Gower Street, London,
WC1E 6BT, United Kingdom

Phone: (614) 292-5588
Fax: (614) 292-3906
Email: sbalan@star.ucl.ac.uk
Homepage: http://tbs1980.github.io

Education

Ph.D. Physics, University of Cambridge, 2012

Dissertation: "Bayesian methods for astrophysical data analysis"

Supervisors: M. P. Hobson and M. A. J. Ashdown

Examiners: A. Hevens and A. Lasenby

M.Sc. Physics, University College London, 2007

Dissertation: "Orbital parameters of extrasolar planets from radial velocity measurements"

Supervisors: O. Lahav and S. Viti

B.Tech. Mechanical Engineering, National Institute of Technology Calicut, India, 2002

Experience

University College London, Department of Physics and Astronomy,
Post-Doctoroal Research Associate, June 2012 - present
Responsibilites:

Design and development of a software for cross-correlating cosmological data

Research computing support and software management

University College London, Department of Physics and Astronomy,
Research Assistant, November 2007 - October 2008
Responsibilites:

Development of a software for exoplanet detection

Simulation of galaxy images for GREAT08 challenge

Research Interests

Cross-correlation of cosmological data

Computational algorithms and numerical methods in astrophysics

Neutrinos and other Dark matter candidates

Statistical inference and large-scale inverse problems in astrophysics

Bayesian methods and Markov Chain Monte Carlo methods

High-Performance-Computing and Big-Data techniques

Scholarships and Awards

Isaac Newton Studentship (awarded to two out of hundred applicants), University of Cambridge, 2009

Pattern Analysis, Statistical Modeling and Computational Learning (PASCAL) grant (£ 4000) for simulating galaxy images, University College London, 2008

Royal Astronomical Society grant (£ 2000) for the development of a statistical software package for analysing radial velocity data of stars, University College London, 2007

Selected Peer-Reviewed Journal Articles

h-index: 10, *i10-index:* 10

Balan, S. T. and Lahav, O. 2009, Monthly Notices of the Royal Astronomical Society, 394(4), 1936-1944

Balan, S. T., Lever, G., and Lahav, O. 2010, Astronomical Society of the Pacific Conference Series, 430, 122

Feroz, F., Balan S. T. and Hobson, M. P., 2011, Monthly Notices of the Royal Astronomical Society, 415(4), 3462-3472

Feroz, F., Balan S. T. and Hobson, M. P., 2011, Monthly Notices of the Royal Astronomical Society: Letters, 416(1), L104-L108

Bridle, S. et al., 2010, Monthly Notices of the Royal Astronomical Society, 405(3), 2044-2061

Bridle, S. et al., 2009, The Annals of Applied Statistics, 3(1), 6-37

Kitching, T., et al., 2012, Monthly Notices of the Royal Astronomical Society, 423(4), 3163-3208

Kitching, T., et al., 2009, The Annals of Applied Statistics, 5(3), 2231-2263

Lentati, L., et al., 2013, Physical Review D, 87(10), 104021

Conference Participation

Invited speaker: Pathways towards habitable planets, 2009, Barcelona, Spain

Invited speaker: Molecules in the atmospheres of extra-solar planets, 2008, Paris, France.

The Euclid Consortium Meeting, 2014, Marseille, France

The Euclid Consortium Meeting, 2013, Leiden, Netherlands

Supervising

Suhail Dhawan, *M. Sc. Dissertation*: "Power Spectrum Estimation for Cosmic Microwave Background Data and Large Scale Structure", 2013

David Klein, *M. Sc. Dissertation*: "Dark Energy on MPc Scales", 2014

Computing skills

Programming Languages: C, C++, Python, R, Fortran, Matlab

High-Performace-Computing: MPI, OpenMP, CUDA, OpenCL

Operating Systems: Linux, Unix, OSX, Windows

Linear Algebra Libraies: BLAS, LAPACK, Eigen, NumPy

Machine Learning Libraries: scikit-learn, OpenANN, cxxnet

Scientific Libraries: GNU Science Library, Boost

Last updated: April 27, 2015