DR JONATHAN R. PRITCHARD

Reader in Astrostatistics

@ j.pritchard@imperial.ac.uk +44 (0)207 594 7557 Blackett Laboratory, Prince Consort Road, SW7 2AZ
London, UK pritchardjr.github.io @jr_pritchard linkedin.com/in/jonathan-pritchard-6b0bbb4
github.com/pritchardjr

EXPERIENCE

Reader in Astrostatistics

Imperial College

Oct 2011 – Ongoing London, UK

- Research into first galaxies, radio astronomy, and astrostatistics
- Undergraduate teaching of Cosmology and Physics
- Supervision of PhD students and postdoctoral researchers
- Leadership of national and international committees

Hubble Fellow/ITC Fellow

Harvard College Observatory

Sep 2007 – Aug 2011 Cambridge, MA

- Research into 21cm signal from the epoch of reionization
- Investigation of cosmology from radio astronomy

PROJECTS

FIRSTDAWN

European Research Council

Project duration Apr 2015 - Apr 2020

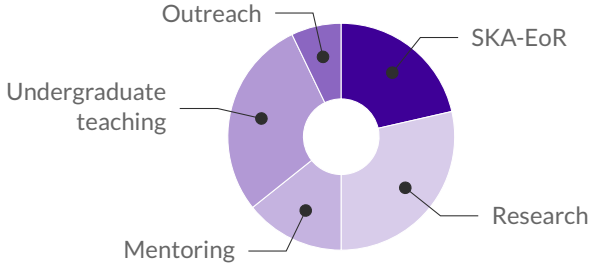
PI of ERC funded project - FIRSTDAWN - to develop statistical probes of 21cm signal and comprehensive theoretical model of reioization and line intensity mapping.

SKA-EoR Science Team

Square Kilometre Array

International collaboration to develop tools and analysis pipeline for epoch of reionization science with the Square Kilometere Array. I am a board member, was chair (2016-18), and co-lead activities developing tools for analysis and interpretation of the expected signal.

PROFESSIONAL ACTIVITIES



MY LIFE PHILOSOPHY

"Wisdom, Courage, and Goodness are the virtues of a gentleman."

MOST PROUD OF

International reputation for research
Awarded Royal Astronomical Society Fowler Prize for early career achievement

Teaching excellence
Received university and faculty awards for undergraduate lecturing

Leadership and team management
Awarded ERC starting grant to build team to develop theory of 21 cm signal from Cosmic Dawn

Commitment to equity and inclusion
Finalist for FDM women in tech "Male Agent of Change" award for work on harassment in academia

STRENGTHS

Creative | Broad perspective | Communicator | Compassionate

C++ | Python | Bayesian Statistics

EDUCATION

PGDip. in University Learning and Teaching

Imperial College

Sept 2012 – June 2014

Ph.D. in Physics

California Institute of Technology

Sept 2002 – June 2007

Thesis title: Extracting the cosmic history from diffuse backgrounds

MSci. in Natural Sciences

Cambridge University

Sept 1998 – June 2002

PUBLICATIONS

Journal Articles

- Majumdar, S. et al. (2018). "Quantifying the non-Gaussianity in the EoR 21-cm signal through bispectrum". In: *MNRAS* 476, pp. 4007–4024. DOI: 10.1093/mnras/sty535. arXiv: 1708.08458.
- Schmit, C. J. and J. R. Pritchard (2018). "Emulation of reionization simulations for Bayesian inference of astrophysics parameters using neural networks". In: *MNRAS* 475, pp. 1213–1223. DOI: 10.1093/mnras/stx3292. arXiv: 1708.00011.
- Burns, J. O. et al. (2017). "A Space-based Observational Strategy for Characterizing the First Stars and Galaxies Using the Redshifted 21 cm Global Spectrum". In: *ApJ* 844, 33, p. 33. DOI: 10.3847/1538-4357/aa77f4. arXiv: 1704.02651 [astro-ph.IM].
- Liu, A. et al. (2016). "Eliminating the optical depth nuisance from the CMB with 21 cm cosmology". In: *Phys Rev D* 93.4, 043013, p. 043013. DOI: 10.1103/PhysRevD.93.043013. arXiv: 1509.08463.
- Pritchard, J. et al. (2014). "Asking gender questions". In: *Astronomy and Geophysics* 55.6, pp. 6.8–6.12. DOI: 10.1093/astrogeo/atu245. arXiv: 1412.4571 [astro-ph.IM].
- Mellema, G. et al. (2013). "Reionization and the Cosmic Dawn with the Square Kilometre Array". In: *Experimental Astronomy* 36, pp. 235–318. DOI: 10.1007/s10686-013-9334-5. arXiv: 1210.0197.
- Pritchard, J. R. and A. Loeb (2012). "21 cm cosmology in the 21st century". In: *Reports on Progress in Physics* 75.8, 086901, p. 086901. DOI: 10.1088/0034-4885/75/8/086901. arXiv: 1109.6012.
- – (2010). "Constraining the unexplored period between the dark ages and reionization with observations of the global 21 cm signal". In: *Phys Rev D* 82.2, 023006, p. 023006. DOI: 10.1103/PhysRevD.82.023006. arXiv: 1005.4057.
- – (2008). "Evolution of the 21cm signal throughout cosmic history". In: *Phys Rev D* 78.10, 103511, p. 103511. DOI: 10.1103/PhysRevD.78.103511. arXiv: 0802.2102.
- Pritchard, J. R. and S. R. Furlanetto (2007). "21-cm fluctuations from inhomogeneous X-ray heating before reionization". In: *MNRAS* 376, pp. 1680–1694. DOI: 10.1111/j.1365-2966.2007.11519.x. eprint: astro-ph/0607234.
- Pritchard, J. R. and M. Kamionkowski (2005). "Cosmic microwave background fluctuations from gravitational waves: An analytic approach". In: *Annals of Physics* 318, pp. 2–36. DOI: 10.1016/j.aop.2005.03.005. eprint: astro-ph/0412581.

REFEREES

Prof. Andrew Jaffe
@ Imperial College
a.jaffe@imperial.ac.uk
Blackett Laboratory
Prince Consort Road
London, SW7 2AZ

Prof. Abraham Loeb
@ Harvard-Smithsonian Center for Astrophysics
loeb@cfa.harvard.edu
60 Garden St
MS-51
Cambridge, MA 02138

Prof. Marc Kamionkowski
@ Johns Hopkins University
kamion@jhu.edu
Bloomberg 439,
3400 N. Charles St.
Baltimore, MD 21218