Thibaut Louis

Mr.

Education

2011–2014 **DPhil in Astrophysics**, *Oxford University*, Data Analysis for high resolution CMB experiments.

2009–2010 2^{nd} **year of Master in Theoretical physics**, *ENS Lyon*, Obtained with honours. 1^{st} rank in: Cosmology, Advanced Quantum Mechanics, Non-Equilibrium Statistical Physics, Gravitationnal Systems.

2008–2009 1^{st} **year of Master**, *ENS Paris/University Paris 7*, Intensive course, mainly focused on theoretical aspects of Physics. Obtained with honours.

2007–2008 **L3 in physics**, *ENS Paris/University Paris 7*, Equivalent to a Bachelor of Science. Intensive course, focused on theoretical and experimental aspects of Physics.

Teaching Experience

2013 **Tutorials for the 3^{rd} year course : General Relativity and Cosmology**, Oxford University.

Internships

2011 **The Atacama Cosmology Telescope**, *Supervised by Joanna Dunkley*, Oxford.
During this internship, I have been working on the Atacama Cosmology Telescope power spectrum estimation, and I have applied the in-painting code developed with Martin Bucher on real data.

2010 **Non-Gaussianity in the Cosmic Microwave Background**, *Martin Bucher*, Paris.
We investigated the effect of masking galactic plan and point sources for the detection of Non-Gaussiannity. We worked on a new way to fill in the masked data using Gaussian constraint realization.

2009 **Baryon acoustic oscillations in the Lyman-α forest**, *Anze Slosar*, Berkeley.
The Boss project focuses on two separate strategies. The first one follows Eiseinstein and considers the distribution of galaxies in the Universe using them as matter tracers. The other one rather uses the Lyman-α absorption in quasars spectra to extract informations about the distribution of matter in the intergalactic medium, from these quasars to the Earth. I worked on this part of the project.

Languages

French **Mother tongue**

English **Fluent**

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Computer skills

Fortran 90, Python, LaTeX

Publications

Martin Bucher and Thibaut Louis. Filling in CMB map missing data using constrained Gaussian realizations. 2011.

Erminia Calabrese, Renee A. Hlozek, Nick Battaglia, Elia S. Battistelli, J. Richard Bond, et al. Cosmological Parameters from Pre-Planck CMB Measurements. 2013.

Sudeep Das, Thibaut Louis, Michael R. Nolta, Graeme E. Addison, Elia S. Battistelli, et al. The Atacama Cosmology Telescope: Temperature and Gravitational Lensing Power Spectrum Measurements from Three Seasons of Data. 2013.

J. Dunkley, E. Calabrese, J. Sievers, G.E. Addison, N. Battaglia, et al. The Atacama Cosmology Telescope: likelihood for small-scale CMB data. 2013.

Rolando Dunner, Matthew Hasselfield, Tobias A. Marriage, Jon Sievers, Viviana Acquaviva, et al. The Atacama Cosmology Telescope: Data Characterization and Map Making. *Astrophys.J.*, 762:10, 2013.

Thibaut Louis, Sigurd Naess, Sudeep Das, Joanna Dunkley, and Blake Sherwin. Lensing Simulation and Power Spectrum Estimation for High Resolution CMB Polarization Maps. 2013.

Sigurd Naess and Thibaut Louis. A fast map-making preconditioner for regular scanning patterns. 2013.

Sigurd K. Naess and Thibaut Louis. Lensing simulations by Taylor expansion Ñ not so inefficient after all. *JCAP*, 1309:001, 2013.

Neelima Sehgal, Graeme Addison, Nick Battaglia, Elia S. Battistelli, J. Richard Bond, et al. The Atacama Cosmology Telescope: Relation Between Galaxy Cluster Optical Richness and Sunyaev-Zel'dovich Effect. *Astrophys.J.*, 767:38, 2013.

Blake D. Sherwin, Sudeep Das, Amir Hajian, Graeme Addison, J. Richard Bond, et al. The Atacama Cosmology Telescope: Cross-Correlation of CMB Lensing and Quasars. *Phys.Rev.*, D86:083006, 2012.

Jonathan L. Sievers, Renee A. Hlozek, Michael R. Nolta, Viviana Acquaviva, Graeme E. Addison, et al. The Atacama Cosmology Telescope: Cosmological parameters from three seasons of data. 2013.

Anze Slosar, Shirley Ho, Martin White, and Thibaut Louis. The Acoustic Peak in the Lyman Alpha Forest. *JCAP*, 0910:019, 2009.

Michael J. Wilson, Blake D. Sherwin, J. Colin Hill, Graeme Addison, Nick Battaglia, et al. The Atacama Cosmology Telescope: A Measurement of the Thermal

Sunyaev-Zel'dovich Effect Using the Skewness of the CMB Temperature Distribution. *Phys.Rev.*, D86:122005, 2012.

References

Dr. Martin Bucher.
E-mail: bucher@apc.univ-paris7.fr

Dr. Julien Lesgourgues.
E-mail:Julien.Lesgourgues@cern.ch

Prof Lyman Page.
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