

# Europass Curriculum Vitae



## Personal information

Surname(s) / First name(s)

Address(es)

Telephone(s)

Email(s)

Nationality(-ies)

Date of birth

Gender

**Basso, Lorenzo**

44, Arnold Road, SO17 1TG, Southampton, UK

+44 (0)795 0412320

lb4x07@soton.ac.uk

Italian

06 November 1983

Male

## Desired employment/ Occupational field

**Placement in a post-doctoral or academic faculty research position**

## Research interests

Phenomenology of Beyond the Standard Model Physics.

## EDUCATION AND TRAINING

Dates

20 October 2007 to now.

Title of qualification going to be awarded

Doctor of Philosophy.

Principal subjects/Occupational skills covered

High Energy Physics, Phenomenology of Beyond the Standard Model theories.

Thesis topic

*Phenomenology of the  $B - L$  extension of the Standard Model: a triply minimal  $U(1)$  extension of the Standard Model, in which we studied collider signatures of, as well as theoretical bounds on, the new particles introduced, a  $Z'$  gauge boson, three Right-handed neutrinos and a further singlet scalar boson.*

Supervisor / advisor(s)

Prof. Stefano Moretti/ Dr. Alexander Belyaev, Dr. Claire H. Shepherd-Themistocleous.

Name and address of organization providing education and training

University of Southampton and RAL-PPD laboratories, UK (within the NExT Institute). School of Physics and Astronomy, University of Southampton, Southampton, SO17 1BJ, UK.

Referees

Prof. Stefano Moretti, Dr. Alexander Belyaev, Dr. Claire H. Shepherd-Themistocleous, Prof. Fabio Zwirner.

Dates

1 October 2005 to 19 September 2007.

Title of qualification awarded

Master Degree in Physics.

110/110 Magna Cum Laude, 14 exams, average mark 29.8/30.

Thesis topic

*A minimal extension of the Standard Model with  $B - L$  gauge symmetry.*

Supervisor / co-supervisor

Prof. Fabio Zwirner / Dr. Massimo Passera.

Name and type of organization providing education and training

Università degli Studi di Padova.

Dates

1 October 2002 to 26 July 2005.

Title of qualification awarded

I Level Degree in Physics.

Thesis topic

110/110, 33 exams, average mark 29/30.

*L'elettromagnetismo in presenza di monopoli magnetici (Electromagnetism in the presence of magnetic monopoles).*

Supervisor

Prof. Kurt Lechner.

Name and type of organization providing education and training

Università degli Studi di Padova.

## WORK EXPERIENCE

Dates

March 2010 to June 2010 and from October 2010 to February 2011.

Occupation or position held

Demonstrator

Main activities and responsibilities

Demonstrator and marker for PHYS 2006 (Classical Mechanics) course.

Name and address of employer

University of Southampton

Dates

October 2009 to February 2010.

Occupation or position held

Demonstrator

Main activities and responsibilities

Demonstrator and marker for PHYS 2023 (Wave Physics) course.

Name and address of employer

University of Southampton

## PERSONAL SKILLS AND COMPETENCES

Mother tongue(s)

**Italian**

Other language(s)

English, Greek (basic knowledge)

*Self-assessment  
European level<sup>(\*)</sup>*

**English**

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
B2	C1	C1	C1	C1

<sup>(\*)</sup> Common European Framework of Reference (CEF) level

Date

12 April 2008.

Title of qualification awarded

IELTS certificate. Overall band: 8

Organisational skills and competences

Scientific Secretariat for the TOOLS 2010 workshop, held in Winchester from the 29 June to 02 May 2010: managing finances, registration of participants, assistance.

Computer skills and competences

Programming: average Fortran, basic C/C++.

Tools: LanHEP and FeynRules(implementation of models); CalcHEP (Proficient use, analysis and event generation/simulation/analysis); Delphes, PAW, ROOT, Mathematica.

Other skills and competences

Windows, Linux, LaTeX.

## LIST OF PUBLICATIONS

### Papers

- 1) Lorenzo Basso, Stefano Moretti and Giovanni Marco Pruna (2010).  
*Phenomenology of the minimal  $B - L$  extension of the Standard Model: the Higgs sector*,  
arXiv:1011.2612 [hep-ph]
- 2) Lorenzo Basso, Stefano Moretti and Giovanni Marco Pruna (2010).  
*Constraining the  $g'_1$  coupling in the minimal  $B - L$  Model*.  
arXiv:1009.4164 [hep-ph]
- 3) Lorenzo Basso, Stefano Moretti and Giovanni Marco Pruna (2010).  
*A Renormalisation Group Equation Study of the Scalar Sector of the Minimal  $B - L$  Extension of the Standard Model*.  
*Phys. Rev.*, **D82**:055018, 2010.  
arXiv:1004.3039 [hep-ph]
- 4) Lorenzo Basso, Alexander Belyaev, Stefano Moretti and Giovanni Marco Pruna (2010).  
*Tree Level Unitarity Bounds for the Minimal B-L Model*.  
*Phys. Rev.*, **D81**:095018, 2010.  
arXiv:1002.1939 [hep-ph]
- 5) Lorenzo Basso, Alexander Belyaev, Stefano Moretti, Giovanni Marco Pruna and Claire H. Shepherd-Themistocleous (2010).  
 *$Z'$  discovery potential at the LHC in the minimal  $B - L$  extension of the Standard Model*.  
arXiv:1002.3586 [hep-ph]
- 6) Lorenzo Basso, Alexander Belyaev, Stefano Moretti and Giovanni Marco Pruna (2009).  
*Probing the  $Z'$  sector of the minimal  $B - L$  model at future Linear Colliders in the  $e^+e^- \rightarrow \mu^+\mu^-$  process*.  
*JHEP*, **10**:006, 2009.  
arXiv:0903.4777 [hep-ph]
- 7) Lorenzo Basso, Alexander Belyaev, Stefano Moretti, and Claire H. Shepherd-Themistocleous (2009).  
*Phenomenology of the minimal B-L extension of the Standard model:  $Z'$  and neutrinos*.  
*Phys. Rev.*, **D80**:055030, 2009.  
arXiv:0812.4313 [hep-ph]

### CMS collaboration

- 1) V. Khachatryan *et al.* [CMS Collaboration] (2010),  
*CMS Tracking Performance Results from early LHC Operation*  
arXiv:1007.1988 [physics.ins-det]
- 2) V. Khachatryan *et al.* [CMS Collaboration (2010)],  
*Measurement of the Underlying Event Activity in Proton-Proton Collisions at 0.9 TeV*  
arXiv:1006.2083 [hep-ex]

- 3) V. Khachatryan *et al.* [CMS Collaboration] (2010),  
*First Measurement of Bose-Einstein Correlations in Proton-Proton Collisions at  $\sqrt{s} = 0.9$  and 2.36 TeV at the LHC*  
*Phys. Rev. Lett.* **105** 032001 (2010)  
arXiv:1005.3294 [hep-ex]
- 4) V. Khachatryan *et al.* [CMS Collaboration] (2010),  
*Transverse-momentum and pseudorapidity distributions of charged hadrons in pp collisions at  $\sqrt{s} = 7$  TeV*  
*Phys. Rev. Lett.* **105** 022002 (2010)  
arXiv:1005.3299 [hep-ex]
- 5) V. Khachatryan *et al.* [CMS Collaboration] (2010),  
*Measurement of the charge ratio of atmospheric muons with the CMS detector*  
*Phys. Lett. B* **692** 83 (2010)  
arXiv:1005.5332 [hep-ex]
- 6) V. Khachatryan *et al.* [CMS Collaboration] (2010),  
*Transverse momentum and pseudorapidity distributions of charged hadrons in pp collisions at  $\sqrt{s} = 0.9$  and 2.36 TeV*  
*JHEP* **1002** 041 (2010)  
arXiv:1002.0621 [hep-ex]

#### Others

- 1) Demis Basso, Lorenzo Basso and Marta Olivetti Belardinelli (2004)  
*Memory processes involved in retrieving information about songs.*  
G. Di Maio & P. Di Lorenzo, Proceedings of the 4th Conference “Understanding and Creating Music”, 2004, CD-ROM
- 2) Demis Basso, Lorenzo Basso and Marta Olivetti Belardinelli (2004)  
*“Do you remember..?” How memory is involved in song recognition.*  
S. Lipscomb, R. Ashley, B. Gjerdingen & P. Webster, Proceedings of the 8th International Conference on Music Perception & Cognition, 2004, Causal Production, Australia. (pp. 602-605) CD-ROM ISBN: 1-876346-50-7.

#### Proceedings

- 1) Lorenzo Basso, Alexander Belyaev, Stefano Moretti, Giovanni Marco Pruna and Claire H. Shepherd-Themistocleous (2010).  
 *$Z'_{B-L}$  discovery potential at the LHC for  $\sqrt{s} = 7$  TeV.*  
arXiv:1011.0872 [hep-ph]
- 2) Lorenzo Basso, Stefano Moretti and Giovanni Marco Pruna (2010).  
*Higgs phenomenology in the minimal  $B - L$  extension of the Standard Model at LHC.*  
arXiv:1009.6095 [hep-ph]
- 3) G. Brooijmans *et al.* (2010)  
*New Physics at the LHC. A Les Houches Report: Physics at TeV Colliders 2009 - New Physics Working Group.*  
arXiv:1005.1229 [hep-ph]
- 4) J. M. Butterworth *et al.* (2010)  
*The Tools and Monte Carlo working group Summary Report*  
To appear in the proceedings of 6th Les Houches Workshop: Physics at TeV Colliders, Les Houches, France, 8-26 Jun 2009.  
arXiv:1003.1643 [hep-ph]

- 5) Lorenzo Basso, Alexander Belyaev, Stefano Moretti and Giovanni Marco Pruna (2010).  
*The  $Z'$  boson of the minimal  $B - L$  model at future Linear Colliders in  $e^+e^- \rightarrow \mu^+\mu^-$ .*  
*Nuovo Cimento C33*, Issue 02, pp 171-174, 2010  
 arXiv:1002.1214 [hep-ph]
- 6) Lorenzo Basso, Alexander Belyaev, Stefano Moretti, Giovanni Marco Pruna and Claire H. Shepherd-Themistocleous (2009).  
*Phenomenology of the minimal B-L extension of the Standard Model.*  
*PoS EPS-HEP2009*, 242 (2009).  
 arXiv:0909.3113 [hep-ph]

## SCHOOLS, CONFERENCES, WORKSHOPS, TALKS

Date and place	23 to 24 September 2010, University of Sussex (UK)
Title	iNExT 2010: The NExT Phase of Particle Physics.
Talk given	Yes: $Z'_{B-L}$ discovery potential at the LHC for $\sqrt{s} = 7$ TeV.
Date and place	22 to 28 July 2010, Paris (France)
Title	ICHEP 2010.
Talk given	Yes: $Z'_{B-L}$ discovery potential at the LHC for $\sqrt{s} = 7$ TeV.
Date and place	30 June 2010, Imperial College, London (UK)
Title	CMSUK meeting.
Talk given	Yes: <i>Properties of the minimal <math>U(1)_{B-L}</math> extension of the SM.</i>
Date and place	29 June to 02 July 2010, Winchester (UK)
Title	TOOLS 2010 "Tools for SUSY and the New Physics, Sharpening our Tools".
Talk given / responsibility	No / Scientific secretariat.
Date and place	26 November 2009, CERN, Geneva (Switzerland)
Title	CMSUK meeting.
Talk given	Yes: <i>Test of a <math>B - L</math> scenario with early LHC data.</i>
Date and place	28 October 2009, RAL, Didcot (UK)
Title	NExT meeting "Early data at the LHC".
Talk given	Yes: <i>Test of a <math>B - L</math> scenario with early LHC data.</i>
Date and place	17 to 23 August 2009, University of Cumbria, Ambleside (UK)
Title	Third linear collider school, LC09.
Talk given	Yes: <i>Phenomenology of the minimal <math>U(1)_{B-L}</math> extension of the Standard Model.</i>
Date and place	16 to 22 July 2009, Krakow (Poland)
Title	EPS HEP 2009.
Talk given	Yes: <i>A <math>B - L</math> extension of the SM and its phenomenology.</i>
Date and place	16 to 30 June 2009, Les Houches (France)
Title	Les Houches 2009 "Physics at TeV colliders".
Talk given	Yes: <i>Phenomenology of the minimal <math>U(1)_{B-L}</math> extension of the Standard Model.</i>
Date and place	25 August to 05 September 2008, University of Cambridge, Cambridge (UK)
Title	BUSSTEPP 2008.
Talk given	No.

Date and place	25 July 2008, CERN, Geneva (Switzerland)
Title	Exotica meetings.
Talk given	Yes: <i>A B – L extension of the SM and its phenomenology.</i>
Date and place	30 June to 04 July 2008, MPI, Munich (Germany)
Title	TOOLS 2008 “For the new physics and its background”.
Talk given	No.
Date and place	07 to 11 January 2008, University of Turin, Turin (Italy)
Title	III graduate school in physics at colliders “From twistors to Monte Carlos”.
Talk given	No.
Date and place	03 to 08 September 2007, University of Parma, Parma (Italy)
Title	II Parma International School of Theoretical Physics on “New Physics at the LHC: from model building to event generation”.
Talk given	No.

## AWARDS

Date	2007 to 2010
Type	PhD Scholarship
Name and type of the providing organization	NExT Intitution
Date	2002 to 2007
Type	Regional Scholarship
Name and type of the providing organization	Università degli studi di Padova

## Annexes

List of publications, list of schools/workshops attended and talks given, awards.