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# CURRICULUM VITAE

## SUBHADITYA BHATTACHARYA

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University of California, Riverside, USA  
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INTERESTS	Theoretical Particle Physics; in particular, phenomenological aspects of Higgs Physics, Supersymmetry, Dark Matter, Neutrinos, Extra-dimensions, Effective Field Theories and Collider Physics.	
EMPLOYMENT	<b>University of California, Riverside</b> <i>Department of Physics and Astronomy</i> ◇ Postdoctoral fellow (3 year position)	from 2010
EDUCATION	<b>Harish-Chandra Research Institute</b> , India ◇ Ph.D. in Theoretical Physics	2004 - 2010
	<b>Jadavpur University</b> , <i>Physics Department</i> ◇ M.Sc. in Physics	2002 - 2004
	<b>Jadavpur University</b> , <i>Physics Department</i> ◇ B.Sc. in Physics	1999 - 2002
THESIS	<i>Supersymmetry with Non-Universal High-Scale Parameters and the Large Hadron Collider</i> Ph.D. Thesis Advisor: Professor Biswarup Mukhopadhyaya	2004-2010
AWARDS FELLOWSHIPS	◇ Postdoctoral fellowship, University of California, Riverside	2010 - 2013
	◇ Postdoctoral fellowship, Oklahoma State University (declined)	2011
	◇ Postdoctoral fellowship, DESY, Germany (declined)	2010
	◇ CSIR-UGC (JRF) scholarship, India	2004
	◇ Scholarship from 'Foundation For Excellence' , USA	2001- 2004

PUBLICATIONS

1. *Heptagonal Symmetry for Quarks and Leptons.*  
Subhaditya Bhattacharya, Ernest Ma, Alexander Natale, Daniel Wegman,  
arXiv:1210.6936 [hep-ph], (Accepted in PRD).
2. *Effective Lagrangian approach to neutrinoless double beta decay and neutrino masses.*  
Francisco del Aguila, Alberto Aparici, Subhaditya Bhattacharya, Arcadi Santamaria, Jose Wudka,  
JHEP 1206 (2012) 146, arXiv:1204.5986 [hep-ph].
3. *A realistic model of neutrino masses with a large neutrinoless double beta decay rate.*  
Francisco del Aguila, Alberto Aparici, Subhaditya Bhattacharya, Arcadi Santamaria, Jose Wudka,  
JHEP 1205 (2012) 133, arXiv:1111.6960 [hep-ph].
4. *Dark Vector-Gauge-Boson Model.*  
Subhaditya Bhattacharya, J.Lorenzo Diaz-Cruz, Ernest Ma, Daniel Wegman,  
Phys.Rev. D85 (2012) 055008, arXiv:1107.2093 [hep-ph].
5. *Signatures of supersymmetry with non-universal Higgs mass at the Large Hadron Collider.*  
Subhaditya Bhattacharya, (UC, Riverside) , Sanjoy Biswas, Biswarup Mukhopadhyaya, (Harish-Chandra Res. Inst.) , Mihoko M. Nojiri,  
JHEP 1202:104, 2012; arXiv:1105.3097 [hep-ph]
6. *Supersymmetry Signals at the LHC under the most favorable SUGRA scenario.*  
Subhaditya Bhattacharya, S. Nandi,  
arXiv:1101.3301 [hep-ph]
7. *Non-universal scalar mass scenario with Higgs funnel region of SUSY dark matter: a signal-based analysis for the Large Hadron Collider.*  
Subhaditya Bhattacharya, Utpal Chattopadhyay, Debajyoti Choudhury, Debotam Das, Biswarup Mukhopadhyaya,  
Phys.Rev.D81:075009, 2010, arXiv:0907.3428 [hep-ph].
8. *Unitarity violation in sequential neutrino mixing in a model of extra dimensions.*  
Subhaditya Bhattacharya, Paramita Dey, Biswarup Mukhopadhyaya,  
Phys.Rev.D80: 075013,2009, arXiv:0907.0099 [hep-ph].
9. *Gaugino mass non-universality in an  $SO(10)$  supersymmetric Grand Unified Theory: Low-energy spectra and collider signals.*  
Subhaditya Bhattacharya, Joydeep Chakraborty,  
Phys.Rev.D81:015007,2010, arXiv:0903.4196 [hep-ph].

10. *Signatures of non-universal gaugino and scalar masses at the Large Hadron Collider.*  
Subhaditya Bhattacharya,  
AIP Conf.Proc.1078:277-279,2009, arXiv:0809.2451 [hep-ph].
11. *Non-universal gaugino and scalar masses, hadronically quiet trileptons and the Large Hadron Collider.*  
Subhaditya Bhattacharya, Asesh Krishna Datta, Biswarup Mukhopadhyaya,  
Phys.Rev.D78:115018,2008, arXiv:0809.2012 [hep-ph].
12. *Non-universal scalar masses: A Signal-based analysis for the Large Hadron Collider.*  
Subhaditya Bhattacharya, Asesh Krishna Datta, Biswarup Mukhopadhyaya,  
Phys.Rev.D78:035011,2008, arXiv:0804.4051 [hep-ph].
13. *Non-universal gaugino masses: A Signal-based analysis for the Large Hadron Collider.*  
Subhaditya Bhattacharya, Asesh Krishna Datta, Biswarup Mukhopadhyaya,  
JHEP 0710:080,2007, arXiv:0708.2427 [hep-ph].

#### WORKS IN PROGRESS

1. *Dual Dark Matter with Scalars and Fermions.*  
Subhaditya Bhattacharya, Aleksandra Drozd, Bohdan Grzadkowski, Jose Wudka.
2. *Bounds on models with large neutrino-less double beta decay rate from Higgs to two photon width at LHC.*  
Francisco del Aguila, Alberto Aparici, Subhaditya Bhattacharya, Arcadi Santamaria, Jose Wudka.
3. *Signatures of Warm Dark Matter Fermion from Left-Right Symmetry at LHC.*  
Subhaditya Bhattacharya, Ernest Ma and Daniel Wegman.
4. *Supersymmetric Left-Right Model of Radiative Neutrino Mass with Multipartite Dark Matter.*  
Subhaditya Bhattacharya, Ernest Ma and Daniel Wegman.

#### TALKS

- Dark Vector Gauge Boson Model and Signatures at LHC*
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|--|-----------|
| ◇ ‘PHENO’, University of Pittsburgh, USA | May, 2012 |
| ◇ ‘West Coast LHC’, SLAC, USA            | Dec, 2011 |
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- Relating High-Scale Non-universalities in SUGRA to the Low-scale Observables at the LHC*
- |                                   |            |
|-----------------------------------|------------|
| ◇ ‘West Cost LHC’, UC Irvine, USA | Dec, 2010. |
| ◇ UC Irvine, USA                  | Feb, 2010. |
| ◇ KEK, Tsukuba, Japan             | Feb, 2010. |
| ◇ Oxford University, UK           | Nov, 2009. |
| ◇ IPPP, Durham University, UK     | Nov, 2009. |
| ◇ University of Glasgow, UK       | Nov, 2009. |
| ◇ University of Minnesota, USA    | Oct, 2009. |

◇ University of Oklahoma, USA	Oct, 2009.
◇ University of California, Riverside, USA	Oct, 2009.
◇ Southampton University, UK	Oct, 2009.
◇ Manchester University, UK	Oct, 2009.
◇ University of Wisconsin in Madison, USA	Oct, 2009.
◇ Northwestern University, Evanston, USA	Oct, 2009.
◇ University Of Maryland, USA	Sep, 2009.
◇ SLAC, USA	Sep, 2009.
◇ BNL, USA	Sep, 2009.
◇ Northeastern University, USA	Sep, 2009.
◇ Pittsburgh University, USA	Sep, 2009.
◇ Oklahoma State University, USA	Aug, 2009.

*Signatures of non-universal gaugino and scalar masses at the Large Hadron Collider*

◇ Saha Institute Of Nuclear Physics, India	Sep, 2008.
◇ SUSY08, Seoul, South Korea	Aug, 2008.

*Non-universal Gaugino Masses*

◇ Visva-Bharati University, India	Feb, 2008.
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*Non-universal gaugino masses: A signal based analysis for the Large Hadron Collider*

◇ Indian Association for the Cultivation of Science, India	Aug, 2007.
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WORKSHOPS  
CONFERENCES

◇ <i>PHENO</i> , University of Pittsburgh, USA	May, 2012
◇ <i>West Coast LHC</i> , SLAC, USA	Dec, 2011
◇ <i>West Coast LHC</i> , UC, Irvine, USA	Dec, 2010
◇ <i>KEK-PH Meeting</i> , KEK, Tsukuba, Japan	Feb, 2010
◇ <i>Data to Theory at the LHC</i> , Shimla, India	Dec, 2009.
◇ <i>Getting Ready For Physics at LHC</i> , HRI, India	Feb, 2009.
◇ <i>BSMLHC</i> , IACS, India	Jan, 2009.
◇ <i>NuHoRIzons</i> , HRI, India	Jan, 2009.
◇ <i>Instructional Workshop on LHC Physics</i> , IISERK, India	Dec, 2008.
◇ <i>NuHoRIzons</i> , HRI, India	Feb, 2008.
◇ <i>SUSY08</i> , Seoul, South Korea	Aug, 2008.
◇ <i>School on QCD at LHC</i> , HRI, India	Nov, 2007.
◇ <i>Hadron Collider Physics Summer School</i> , CERN, Switzerland	Aug, 2007.
◇ <i>WIN07</i> , SINP, India	Jan, 2007.

- ◇ *Topical Meeting on Physics at the LHC*, HRI, India Dec, 2006.
- ◇ *SERC School in Theoretical High Energy Physics*, PRL, India Aug, 2006.

TEACHING Harish-Chandra Research Institute, *Department of Physics* 2007-2009  
 EXPERIENCE *Teaching Assistant*  
**Graduate Courses:** Mathematical Methods, Advanced Quantum Mechanics, Particle Physics, Computational Methods

COMPUTATIONAL EXPERTISE ◇ Mathematica, Fortran, C, Octave.

- ◇ Monte Carlo Parton-level integrations, PYTHIA, CalcHEP, MADGRAPH, ALPGEN.
- ◇ SUSY spectrum generators SuSpect, ISASUGRA.
- ◇ Dark matter related calculations using MicroOmega.

REFERENCES ◇ Professor Biswarup Mukhopadhyaya,  
 Harish-Chandra Research Institute,  
 Chhatnag Road, Jhansi, Allahabad-211019, India  
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