

## CURRICULUM VITAE OF BRUCE MELLADO

### (1) Professional Preparation

Moscow State University	Physics	B.Sc.	1995
Moscow State University	Physics	M.Sc.	1995
Columbia University	Physics	M.A.	1997
Columbia University	Physics	Ph.D.	2001

**Thesis Advisors** Professors Allen Caldwell and Frank Sciulli

### (2) Appointments

August 2015 – present	Professor of Physics, University of the Witwatersrand
May 2018 – present	Senior Scientist, iThemba LABS
Jan 2013 – August 2015	Associate Professor, University of the Witwatersrand
Aug 2012-Dec 2012	Visiting Associate Professor, University of the Witwatersrand
Aug 2006-Dec 2012	Assistant Professor, University of Wisconsin-Madison
2004-2006	Assistant Scientist, University of Wisconsin-Madison
2002-2004	Associate Researcher, University of Wisconsin-Madison
1997-2001	Research Assistant, Columbia University
Summer 1996	Summer Research Assistant, Columbia University
1994-1995	Undergraduate Research Assistant, Moscow State University

### (3) Honors

- Finalist TW Kambule-NSTF Award: Research and its outputs (2018)
- Finalist NSTF award: Innovation (2018)
- Finalist TW Kambule-NSTF Award: Research and its outputs (2017)
- Most highly cited researcher Award of the University of the Witwatersrand (2015-2017)
- First Time Inventor Award by the University of the Witwatersrand (2014)
- Internationally Acclaimed Researcher by the NRF, B1
- American Physical Society-IUSSTF Professorship Award in Physics (2011)
- EMC2 Visiting Fellow, LAL, France (2010 and 2011)
- CERN Fellowship awarded (2001)
- Marie Curie Fellowship with Univ. of Oxford awarded (2001)
- Awarded B.Sc. and M.Sc. with Honors (1995)
- Fellowship of Spanish-Russian Ministries of Education at Moscow State University (1989-1995)

### (4) Collaborations

ZEUS Collaboration <http://www-zeus.desy.de/>

BABAR Collaboration <http://www.slac.stanford.edu/cgi-wrap/colli>

ATLAS Collaboration <http://atlas.web.cern.ch/Atlas/ORGANISATION/Directory/alphabetic.html>

CTEQ Collaboration <http://www.phys.psu.edu/~cteq/>

### (5) Leadership roles

- Director, Wits Institute for Collider Particle Physics (2018-2023)

## *Curriculum Vitae*

- Co-Chair of the Nuclear, Particle and Radiation Division of the South African Institute of Physics (2019-2020)
- National Contact Physicist of South Africa at the ATLAS experiment (2016-2019)
- Vice Chair of Membership at the Administrative Committee of the NPSS Society of the IEEE (2018-2020)
- Level 2 Manager of the TileCal Phase II upgrade (2017-2022)
- Coordinator of the SA-ATLAS group (2016-2019)
- Co-Convener of the WG1 of the Higgs-cross section group (2014-2016)
- Member of the LHeC Coordination Group (2014-2018)
- Co-convener of Jet sub-group of the Higgs cross-section group (2012-2014)
- Convener of the ATLAS  $H \rightarrow WW, inv$  group (2008-2010)
- Co-convener of ATLAS  $H \rightarrow \gamma\gamma$  group (2006-2008)
- Co-convener of ATLAS  $W/Z+jets$  group (2006-2008)
- Co-convener of US ATLAS Standard Model and Higgs Physics group (2006-2007)

### Committees, Task Forces and other positions

- Member of the Administrative Committee of the NPSS Society of the IEEE (2018-2021)
- Deputy Chairman of iThemba LABS-Gauteng Users Committee (2015-2018)
- Member of TileCal Institutional Board Chair Election Committee (2015)
- Member of the IP committee at Wits University (2015-2018)
- Co-convener of cyber-infrastructure at Wits University (2014)
- Member of the Wits Senate eResearch Committee (2016-2018)
- Member of the Wits Senate ICT Reference Committee (2014-2018)
- Member of TileCal speakers and publications committee (2012-2014)
- MET Liaison of the ATLAS Higgs Working group (2011-2013)
- Chair of Editorial Board of Charged Higgs  $\rightarrow \tau\nu$  Searches at ATLAS (2011)
- Member of Search Committee for new members of the Publications Committee (2011)
- Member of the ATLAS SM cross-section Task Force (2010)
- Member of US ATLAS Distributed Analysis Panel (2010)
- UW Faculty Diversity Strategy committee (2010)
- Member of the Higgs cross-section Task Force (2009-2010)
- Member of the US ATLAS Tier3 Task Force (2008-2009)
- Member of US ATLAS Computing Resource Allocation Committee (2005-2010)
- Elected member of the CTEQ collaboration (2007-present)
- Member of the Executive Committee of the UW Latino Faculty Staff Association (2007-2012)
- Member of the ATLAS task force to establish guidelines for election of physics conveners (2002)

### Conferences and panels

## *Curriculum Vitae*

- Member of the International Advisory Committee of the 15<sup>th</sup> Recontres du Vietnam, ICISE, Quy Nhon, Vietnam, September 15<sup>th</sup>-21<sup>st</sup> 2019
- Chair of session “Standard Model and Beyond”, New Trends in High Energy Physics, Budva, Montenegro, 24<sup>th</sup>-30<sup>th</sup> September 2018.
- Chair of session “FCC-eh: Physics and detector”, FCC Week 2018, Beurs van Berlage, Amsterdam, April 9<sup>th</sup>-13<sup>th</sup> 2018
- Panelist “Global Mega-Projects: the SKA challenges”, Multicore World 2018, Wellington, New Zealand, February 8<sup>th</sup> 2018
- Co-chair of the High Energy Particle Physics Workshop 2018, iThemba LABS, Gauteng, January 31<sup>st</sup>- February 2<sup>nd</sup> 2018.
- Co-chair of the High Energy Particle Physics Workshop 2017, iThemba LABS, Gauteng, February 1<sup>st</sup>-3<sup>rd</sup> 2017.
- Member of the Organizing Committee of Kruger 2014 Conference, Kruger Park, December 5<sup>th</sup>-9<sup>th</sup> 2016.
- Co-convenor of the “Beyond the Standard Model” session of ICHEP, Chicago, August 3<sup>rd</sup>-10<sup>th</sup> 2016.
- Co-chair of the Organizing Committee of the Second High Energy Particle Physics Workshop, iThemba LABS – Gauteng, Johannesburg, February 8<sup>th</sup>-10<sup>th</sup> 2016.
- Co-convenor of Higgs boson session LHCP 2015, St. Petersburg, Russia, August 30<sup>th</sup>-September 5<sup>th</sup> 2015.
- Panel discussion leader, “Role of technology in Education”, Math, Science & ICT in Education, Johannesburg, August 17<sup>th</sup>-18<sup>th</sup> 2015.
- Co-chair of the Organizing Committee of High Energy Particle Physics Workshop, iThemba LABS – Gauteng, Johannesburg, February 11<sup>th</sup>-13<sup>th</sup> 2015.
- Member of Organizing Committee of the Higgs (N)NLO MC and Tools Workshop for LHC Run-2, CERN, Geneva, December 17<sup>th</sup>-19<sup>th</sup> 2014.
- Member of the Organizing Committee of the Chris Engelbrecht School, Cape Town, January 12<sup>th</sup>-23<sup>rd</sup> 2015.
- Member of the Organizing Committee of Kruger 2014 Conference, Kruger Park, December 1<sup>st</sup>-5<sup>th</sup> 2014.
- Member of the Organizing Committee of the CTEQ School in Beijing, China, July 8<sup>th</sup>-18<sup>th</sup> 2014.
- Co-chair of the Organizing Committee of the International Workshop “High-performance Signal and Data Processing: Challenges in Astro- and Particle Physics and Radio Astronomy Instrumentation”, Wits University, January 27<sup>th</sup>-31<sup>st</sup> 2014.
- Co-convenor of Physics and Detector session of the LHeC Workshop, Chavannes-de-Bogis, Switzerland, January 20<sup>th</sup>-21<sup>st</sup>, 2014.
- Member of the International Advisory Committee of “Physics at the LHC and Beyond”, Vietnam, August 2014.

## *Curriculum Vitae*

- Co-Convener of Higgs session of XLIII International Symposium on Multiple Dynamics, Illinois Institute of Technology in Chicago, USA, September 15<sup>th</sup>-20<sup>th</sup> 2013.
- Chaired Particle Physics session at the SAIP Annual Conference, University of Zululand, July 8<sup>th</sup>-12<sup>th</sup> 2013.
- Member of Organizing Committee of CTEQ School in Pittsburg, USA, 7<sup>th</sup>-17<sup>th</sup> July 2013.
- Co-Convener of hard QCD session of QCD@LHC 2012 MSU, Aug 20<sup>th</sup> -24<sup>th</sup> 2012.
- Co-Convener of Higgs session of SUSY12, Beijing, China, 13<sup>th</sup>-17<sup>th</sup> Aug 2012.
- Member of the International Advisory Committee of Kruger2012 "Workshop on Discovery Physics at the LHC" Dec. 3 - 7, 2012
- Member of Organizing Committee of CTEQ/FermiLab School in Lima, Peru, Summer 2012.
- Co-convener of Higgs and Quarkonium session of CTEQ/LPC workshop, FermiLab, November 17-19 2011.
- Member of the International Advisory Committee of Workshop on Baryon & Lepton Number Violation, BLV2011, Tennessee, September 2011.
- Organizing committee of CTEQ 2011 School, Madison, July 2011.
- Panelist of "Dark Matter Research in the Indian Context", SINP, Kolkata, 4-8 January 2011.
- Member of International Advisory Committee for Workshop of Discovery Physics at the LHC, Kruger 2010, South Africa, December 2010.
- Convener of Standard Model group of Kruger 2010, South Africa, December 2010.
- Convener of MET session of Hadronic Calibration Workshop, Pisa, September 14<sup>th</sup> 2010.
- Chair of Tevatron session of PHENO2009, May 11<sup>th</sup> 2009.
- Chair of LHC session of DAE-BRNS-HEP08 Symposium, December 2008.
- Chair of the top-physics session of PHENO2008, May 2008
- Co-convener of Working Group Collider and Flavor Physics of WHEPP X, January, Chennai, India, January 2<sup>nd</sup>-13<sup>th</sup> 2008.
- Organizer of Physics Jamboree for Israel-ATLAS community in Tel Aviv University, February 2007.
- Co-organizer of the North American Standard Model and Higgs Jamboree, Argonne National Laboratory, January 2007.
- Co-organizer of North American Standard Model and Higgs Workshop, Argonne National Laboratory, April 2006.
- Co-Convener of Tevatron-LHC Connection Session at WIN03, Lake Geneva, WI, USA, 2003.

## Journals

- Referee for European Physical Journal C.

**(6) Advisor to graduate students (MSc, PhD)**

- Xin Chen, PhD 2008, "Reconstruction of Missing  $E_T$  and Search for a SM Higgs Boson via VBF in the  $H \rightarrow \tau\tau$  Decays in ATLAS"
- Yaquan Fang, PhD 2008, "Search for SM Higgs Decaying to Two Photons with the ATLAS Detector"
- Alden Stradling, PhD 2008, "An Examination of Backgrounds to Early-Run Minimum-Bias Events in ATLAS at the LHC"
- Joaquin Poveda, PhD 2009 (external advisor) "Energy Reconstruction in the Hadronic Tile Calorimeter and Early SUSY Fully Hadronic Searches in ATLAS"
- Artanxa Ruiz, PhD 2009 (external advisor) "Studies with Muons in ATLAS: TileCal Level-2 Trigger and MSSM Higgs Discovery Reach"
- Carlos Solans, PhD 2010 (external advisor) "Implementation of the ROD Crate DAQ Software for the ATLAS Tile Calorimeter and Search for a MSSM Higgs Boson Decaying into Tau Pairs", **ATLAS Thesis Award for 2010**
- Amanda Kruse, PhD 2014, "Discovery of the Higgs Boson with the Diphoton Decay and First Differential Cross-section Measurements", **Argonne National Laboratory ATLAS ASC fellow (2011-12), NSF honorary list (2011)**
- Yesenia Hernandez, PhD 2016 (co-advisor), "Observation of Higgs Boson Decays to  $WW^*$  with Dilepton and Missing Transverse Momentum Events in the ATLAS Detector", **Graduated with distinction.**
- Abhirami Senthilkumaran, MSc 2012
- Anusha Gopalakrishnan, MSc 2012
- Sanish Mahadik, MSc 2012
- Mitch Cox, MSc 2016, **SAIP First prize for MSc presentation (2014), First Prize for MSc poster (2014), SAIP First Prize for MSc presentation (2015)**
- Harsha Jivan, MSc 2016, "Proton induced radiation damage studies on plastic scintillators for the Tile Calorimeter of the ATLAS detector", **SAIP Second Prize for MSc presentation (2014), SAIP First Prize for MSc presentation (2016), Graduated with distinction**
- Robert Reed, PhD 2017, "The search for new physics in the diphoton decay channel and the upgrade of the Tile-Calorimeter electronics of the ATLAS detector", **NRF Innovation Fellowship (2013), SAIP First Prize for best poster in Nuclear, Particle and Radiation Physics (2013), PhD Poster, Second Prize at the 5<sup>th</sup> Cross Faculty Graduate Symposium at Wits (1<sup>st</sup>-2<sup>nd</sup> August 2013), Graduated with distinction**
- Chad Pelwan, MSc 2017, "An electron paramagnetic resonance study of proton induced damage in plastic scintillators for the ATLAS detector", **SAIP First Prize for MSc poster (2015), SAIP First Prize for MSc presentation (2016), Graduated with distinction**
- Marc Sacks, MSc 2017, "On the Use of Heterogenous Computing in High-Energy Particle Physics at the ATLAS Detector"
- Dingane Hlaluku, MSc 2017, "ATLAS Tile Calorimeter Online Software Reorganization and Phase-II Test-beam Campaigns", **Graduated with distinction**
- Skhathisumosa Mthembu, MSc 2018, "Neutron radiation damage of plastic scintillator UPS 923A and a data driven method in the  $Zh+E_{miss}^T$  search at the LHC"

## *Curriculum Vitae*

- Abdualazem Fadol Mohammed, MSc 2018, “Search for a Heavy Boson in Diphoton and Multileptons Final States at The Large Hadron Collider in pp at  $\sqrt{s} = 13$  TeV”
- Amir Abuelrous, MSc 2019, “Search of a Heavy Higgs Boson in Multi-Higgs Doublet Models”
- Gaogalalwe Mokgatitswane, MSc 2019 (co-advisor), “A Systematic Study of the Properties of Radiation Induced Damage in Plastic Scintillators for the Upgrade of the Tile Calorimeter of the ATLAS Detector”, **Graduated with distinction**
- Stefan von Buddenbrock, PhD, **SAIP First Prize for MSc presentation (2015,2016), SAIP First Prize for PhD presentation (2017), Best PhD presentation NiThep bursary workshop (2017)**
- Daniel O Kwofie (co-advisor), PhD, **SAIP First Prize for PhD poster (2015)**
- Kehinde Tomiwa, PhD 2019, “The readout electronics of the BM@N and ATLAS TileCal experiments and the search of new scalar bosons with ATLAS detector”, **SAIP First Prize for PhD presentation (2018)**
- Shell-may Liao, PhD 2019, “Search for new physics in events with missing transverse energy and the Higgs boson decaying to two photons with the ATLAS detector at CERN”
- Humphry Tlou, MSc 2019, “Implementation of the Stopless removal software for the Level-1 Tile-Muon Trigger system of the LHC ATLAS”
- Roger Van Rensburg, MSc
- Elie Rajaobelina, PhD
- Ntsoko Phuti Rapheeha, MSc
- Moratwe Mdhului, MSc
- Mzwandile Thabede, MSc
- Onesimo Mtintsilana, MSc, **SAIP Prize for MSc poster (2018)**
- Nthabiseng Lekalakala, MSc
- Thabo Masuku, MSc
- Lehumo Mashishi, MSc
- Lebohang Mokoena, MSc
- Jeremiah Monnakgotla, MSc, **SAIP Price for MSc Presentation (2019)**
- Rorisang Sitoboli, MSc, **SAIP Prize for MSc poster (2018)**
- Thabang Magabe, MSc
- Nkateko Baloyi, MSc, **SAIP Prize for MSc poster (2019)**
- Mpho Gololo, PhD
- Theodore Gaelejwe, MSc
- Danielle Sabatta, MSc, **SAIP Prize for MSc poster (2019)**
- Humphry Tlou, PhD

### **(7) Top 10 Publications as a principal author**

1. ZEUS results on the measurement and phenomenology of  $F(2)$  at low  $x$  and low  $Q^{*2}$ . By ZEUS Collaboration, *European Physical Journal C* 7: 609-630 (1999) **TOPCITE = 250+ with 352 cites**

## Curriculum Vitae

2. Exclusive photoproduction of J / psi mesons at HERA. By ZEUS Collaboration, *European Physical Journal C* **24**: 345-360 (2002) **TOPCITE = 100+ with 285 cites**
3. Prospects for the search of a standard model Higgs Boson in ATLAS Using Vector Boson Fusion, S. Asai et al., *Eur. Phys. J., C* **32** (2004) 19-54 **TOPCITE = 100+ with 188 cites**
4. Prospects for the Observation of a Higgs Boson with  $H \rightarrow \tau^+ \tau^- \rightarrow l^+ l^- p_T$  associated with one high- $P_T$  jet at the LHC, B. Mellado, W. Quayle, S.L.Wu, *Physics Letters B* **611**, 60 (2005), with 33 cites
5. The ATLAS Experiment at the CERN Large Hadron Collider, ATLAS Collaboration, JINST **3**:S08003 (2008) **TOPCITE = 1000+ with 7126 cites**
6. Combined search for the Standard Model Higgs boson using up to 4.9 fb<sup>-1</sup> of pp collision data at sqrt(s) = 7 TeV with the ATLAS detector at the LHC, Phys.Lett. B710 (2012) 49-66, **TOPCITE = 100+ with 688 cites**
7. Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC, Phys.Lett. B716 (2012) 1-29, **TOPCITE 1000+ with 9383 cites**
8. Azimuthal angle probe of anomalous HWW couplings at high energy ep colliders, S. Biswal, R. Godbole, B. Mellado and S. Raychaudhuri, Phys.Rev.Lett. **109** (2012) 261801, with 38 cites
9. Probing the spin-parity of the Higgs boson via jet kinematics in vector boson fusion, A. Djouadi, R.M. Godbole, B. Mellado and K. Mohan, Phys. Lett. **B723** (2013) 307-313, **TOPCITE = 50+ with 89 cites**
10. Phenomenological signatures of additional scalar bosons at the LHC, S. von Buddenbrock, N. Chakrabarty, A. Cornell, D. Kar, M. Kumar, B. Mellado, B. Mukhopadhyaya, R. Reed, X. Ruan, Eur.Phys.J. C76 (2016) no.10, 580, **TOPCITE = 50+ with 57 cites**

### (8) Chapters in Books

1. Expected Performance of the ATLAS Experiment - Detector, Trigger and Physics, The ATLAS Collaboration CERN-OPEN-2008-020 (2009). Edited the "Higgs Boson" Chapter
2. Physics at the Large Hadron Collider, Springer, ISBN 978-81-8489-215-4 (2009). Edited the Chapter "Prospects of Searches for the Higgs boson at the LHC"
3. Handbook of LHC Higgs Cross Sections: 2. Differential Distributions, ISSN 9789290833710 (2012). Edited the Chapter "WW decay mode"
4. A Large Hadron Electron Collider at CERN, ISSN: 0954-3899 (2012), Edited the Chapter "Sensitivity to a Higgs Boson"
5. Handbook of LHC Higgs cross sections: 3. Higgs properties, ISSN 0007-8328 (2013). Edited Chapter "Jets in Higgs Physics"
6. Handbook of LHC Higgs cross sections: 4. Deciphering the nature of the Higgs sector, ISBN (Print) 978-92-9083-442-7 (2017), Co-editor of First part of the book, Standard Model Predictions with 270 pages and 9 Chapters

### (9) Invited Talks at Conferences and Schools

1. "Fragment Angular Distributions for Fission Nuclei Having Two Classes of Excited States", Lomonosovskie Shtenia, Moscow, Russia, May 1995.
2. "Perturbative/Non-Perturbative QCD Interface in ep Physics", XXXIII-rd Rencontres de Moriond, Les Arcs, France, March 21<sup>st</sup>-28<sup>th</sup>, 1998.
3. "Diffractive Vector Meson Production at HERA", ICHEP00, Osaka, Japan, July 27-August 3<sup>rd</sup>, 2000.

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4. “Diffractive Vector Meson Production at HERA”, EPS01, Budapest, Hungary, July 2001.
5. “Prospects for Higgs Physics at LHC, HCP2002” (**Plenary**) Karlsruhe, Germany, October 3<sup>rd</sup> 2002.
6. “Tevatron/LHC Connection” WIN03, Lake Geneva, Wisconsin, USA, January 7<sup>th</sup> 2003.
7. “Higgs Physics at the LHC” (**Plenary**) PHENO2003, Wisconsin, USA, May 7<sup>th</sup> 2003.
8. “Vector Boson Fusion Studies in ATLAS” Les Houches, France, May 29<sup>th</sup> 2003.
9. “Experimental Wish-List N(N)LO tools” (**Plenary**) MC4LHC workshop, CERN, Geneva, July 9<sup>th</sup> 2003.
10. “K Factors in  $H \rightarrow ZZ^* \rightarrow 4l$ ”, MC4LHC Workshop, CERN, Geneva, July 9<sup>th</sup> 2003.
11. “Tag Jets in Vector Boson Fusion” HERA4LHC Workshop, CERN, Geneva, Switzerland, March 27<sup>th</sup> 2004.
12. “Higgs Reach through VBF with ATLAS”, XXXIX Rencontres de Moriond, Les Arcs, France, April 2<sup>nd</sup> 2004.
13. “Prospects of Higgs Searches at the LHC” (**Plenary**) XVIII<sup>th</sup> International Workshop on High Energy Physics and Quantum Field Theory, Russia, June 19<sup>th</sup> 2004.
14. “Baryon Production and Pentaquark Searches at B factories” (**Plenary**) FPCP05, Daegu, Korea, August 10<sup>th</sup> 2004.
15. “W,Z + jet studies at Tevatron relevant to Higgs Searches at the LHC”, TEV4LHC Workshop, Fermi Lab, Chicago, USA, September 16<sup>th</sup> 2004.
16. “Higgs + 1jet Signatures”, TEV4LHC Workshop, BNL, February 3<sup>rd</sup> 2005.
17. “Higgs and Vector Boson Fusion” (**Plenary**) TEV4LHC, BNL, February 4<sup>th</sup> 2005.
18. “Higgs Searches at the LHC” (**Plenary**) Aspen Physics Center, August 22<sup>nd</sup> 2005.
19. “Challenges of the LHC” (**Plenary**) International School of Instrumentation, Istanbul, Turkey, September 9<sup>th</sup> 2005.
20. “Higher Order QCD Corrections in  $H \rightarrow \gamma\gamma$  Analyses”, TEV4LHC workshop, Fermi Lab, Chicago, USA, October 21<sup>st</sup> 2005.
21. “Higgs Production via VBF: Comparison between generators”, MC4LHC workshop, CERN, Geneva, Switzerland, July 18<sup>th</sup> 2006.
22. “SM Higgs Searches in the Early Phase of the LHC with ATLAS”, LHC4ILC Workshop, Fermilab, Chicago, USA, April 12<sup>th</sup> 2007.
23. “Lectures on Higgs Physics at the LHC”, (**Plenary, Lecture**) CTEQ School, Madison, USA, June 1<sup>st</sup>-2<sup>nd</sup> 2007.
24. “Jet Multiplicity and Background Extraction in Inclusive SUSY Analyses at the LHC”, Pheno 2007, Madison, Wisconsin, USA, June 5<sup>th</sup> 2007.
25. “Higgs Physics at the LHC” (**Plenary**), WHEPP-X, Chennai, India, January 5<sup>th</sup> 2008.
26. “Model-independent search for Higgs at Atlas”, Hidden Higgs Workshop, UC Davis, California, March 7<sup>th</sup> 2008.
27. “Status of Higgs Feasibility Studies at ATLAS”, Pheno 2008, Madison, Wisconsin, April 28<sup>th</sup> 2008.
28. “UW-ATLAS Experiences with Condor”, (**Plenary**), Paradyn / Condor Week, Madison, May 1<sup>st</sup> 2008.
29. “The CMS and ATLAS Detectors”, (**Plenary, Lecture**) Harish-Chandra Research Institute, India, December 8<sup>th</sup> 2008.



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30. "Higgs Searches at the LHC", (**Plenary, Lecture**) Harish-Chandra Research Institute, December 9<sup>th</sup> 2008.
31. "Searches for Super-Symmetry at the LHC", (**Plenary, Lecture**) Harish-Chandra Research Institute, December 10<sup>th</sup> 2008.
32. "Searches for Beyond the Standard Model at the LHC", (**Plenary, Lecture**) Harish-Chandra Research Institute, December 11<sup>th</sup> 2008.
33. "Status of Preparation for Higgs at the LHC", (**Plenary**) DAE-BRNS-HEP08 Symposium, Banaras Hindu University, Varanasi, India, December 16<sup>th</sup> 2008.
34. "Searches for the Higgs at the LHC", (**Plenary, Two Lectures**) Indian Institute of Science Education and Research, Kolkata, India, December 19-20<sup>th</sup> 2008.
35. "Feasibility of Standard Model Higgs Searches at the LHC" (**Plenary**), Workshop on measuring the Higgs properties at the LHC, University of Washington, Seattle, January 13<sup>th</sup> 2009.
36. "Normalizing VV production at the LHC" (**Plenary**), HEFTI Workshop on Missing Energy Signal at the LHC, University of California Davis, April 1<sup>st</sup> 2009.
37. "Predicting the production of double Weak Boson at the LHC", PHENO2009, University of Wisconsin-Madison, Madison, May 11<sup>th</sup> 2009.
38. "Searches with the First ATLAS data" (**Plenary**), Collider Physics 2009: Joint Argonne and IIT Theory Institute, May 20<sup>th</sup> 2009.
39. "Cross-sections and branching ratios for the SM Higgs", Vector Boson Fusion Workshop, Fermilab June 17<sup>th</sup>-19<sup>th</sup> 2009.
40. "Prospect of Atlas VBF Higgs Search", Vector Boson Fusion Workshop, Fermilab June 17<sup>th</sup>-19<sup>th</sup> 2009.
41. "Higgs Boson Searches and the Hbb Coupling at the LHeC", Workshop on the LHeC, Divonne, France, September 3<sup>rd</sup> 2009.
42. "Multi-lepton final states and lepton number violation at the LHC", (**Plenary**) Workshop on Lepton and Baryon Number Violation, LBV09, Madison, September 23<sup>rd</sup> 2009.
43. "SUSY-Higgs at the LHC" (**Plenary, cancelled**), Primera reunión de la red temática española de Física del LHC, Granada, Spain, October 29<sup>th</sup> 2009.
44. "Search for the Low Mass Higgs Boson in ATLAS" (**Plenary**), Aspen, January 17<sup>th</sup> 2010.
45. "Background studies with the data at ATLAS" (**Plenary**), Theory Experiment Interplay at the LHC Workshop, Royal Holloway, London, April 8<sup>th</sup> 2010.
46. "Discovery Physics with the first data at the LHC", (**Plenary**), QFTHEP, Moscow, September 8<sup>th</sup>-15<sup>th</sup> 2010.
47. "Lecture on Higgs searches at the LHC" (**Plenary, Lecture**) Third High Energy Physics School in Magurele, October 21<sup>th</sup>-23<sup>th</sup> 2010.
48. "Physics Prospects of the LHeC", (**Plenary**), Kruger 2010, South Africa, December 5<sup>th</sup>-10<sup>th</sup> 2010.
49. "Searches of new physics with Missing Transverse Momentum", (**Plenary**) Dark Matter Workshop at Saha Institute, Kolkata, India, 4<sup>th</sup>- 8<sup>th</sup> January 2011.
50. "Results from the ATLAS Experiment", (**Plenary, Lectures**) JINR, Gomel 2011 International School, 1<sup>st</sup>-12<sup>th</sup> August 2011, Bielorussia.
51. "Status of Higgs searches at the LHC", (**Plenary**) 2011 International Workshop on Baryon and Lepton Number Violation, Gatlinburg, September 22<sup>nd</sup> 2011.
52. "Lecture on Higgs searches at the LHC" (**Plenary, Lecture**) Fourth High Energy Physics School in Magurele, October 26<sup>th</sup>- 28<sup>th</sup> 2011.
53. "Lectures on Physics at the LHC", (**Plenary, Lectures**) HRI, Allahabad, India, December 2011.
54. "The Search for a Light Higgs at ATLAS", (**Plenary**) Light Higgs Implications for the

- Search for New Physics at the LHC, University of Pittsburgh, January 13<sup>th</sup>-15<sup>th</sup>, 2012
55. “Prospects for Higgs Searches”, **(Plenary, Summary of Workshop)** Light Higgs Implications for the Search for New Physics at the LHC, University of Pittsburgh, January 13<sup>th</sup>-15<sup>th</sup>, 2012.
  56. Invited to report on  $H \rightarrow WW, ZZ$  at ATLAS the “Tera Higgs Workshop” at the University of Oregon in April 4<sup>th</sup>-6<sup>th</sup> 2012.
  57. “Experimental Issues of Jets in Higgs Search”, **(Plenary)** VI LHC Higgs cross-section workshop, CERN, May 24<sup>th</sup>-25<sup>th</sup> 2012.
  58. “Azimuthal Angle Probe of Anomalous HWW Couplings at the LHeC”, 2012 CERN-ECFA-NuPECC Workshop on the LHeC, Chavannes-de-Bogis, Switzerland, June 14<sup>th</sup>-15<sup>th</sup>, 2012.
  59. “Lectures on Higgs Physics at the LHC”, **(Plenary, Lectures, cancelled)** CTEQ School, Lima, Peru, July 31<sup>st</sup> – August 8<sup>th</sup>, 2012.
  60. “Higgs results from ATLAS”, **(Plenary)** Top-Higgs meeting, Centre for High Energy Physics and the Advanced Centre for Applications of Quantum Field Theory, Indian Institute of Science, Bangalore, August 27<sup>th</sup> 2012.
  61. “Status of  $H \rightarrow \tau\tau$  searches at ATLAS”, HDays 2012, Santander, September 19<sup>th</sup> 2012.
  62. “Prospects of Higgs Physics at the LHC”, **(Plenary)** The Higgs boson and the next discovery workshop, Pittsburgh, USA, October 21<sup>st</sup> 2012.
  63. “The Physics Case for an Electron Proton Collider at the LHC (LHeC)”, Kruger 2012, Kruger Park, South Africa, December 6<sup>th</sup> 2012.
  64. “Status of Higgs Physics at the LHC”, **(Plenary)** HiggsTop 2013, Goa, India, February 25<sup>th</sup>-27<sup>th</sup> 2013.
  65. “Higgs in ep at the LHeC”, **(Plenary)** LHeC for LPCC, CERN, Switzerland, April 17<sup>th</sup>-18<sup>th</sup> 2013.
  66. “Physics of the Higgs boson at the LHeC”, XXI International Workshop on Deep-Inelastic Scattering and Related Subjects, Marseille, France, April 22<sup>th</sup>-26<sup>th</sup> 2013
  67. “Roadmap for Collider High Energy Physics in light of Higgs discovery”, Research Infrastructure roadmap workshop, Cape Town, South Africa, June 27<sup>th</sup> 2013.
  68. “Higgs in ep at the LHeC”, Snowmass meeting, Seattle, Washington July 2<sup>nd</sup> 2013
  69. “The Discovery of the Higgs Boson at the LHC”, SAIP Annual Conference, University of the Zululand, July 8<sup>th</sup>, 2013.
  70. “Higgs Physics at the LHeC”, **(Plenary)** International Symposium of Higgs Physics, IHEP, Beijing, August 16<sup>th</sup> 2013.
  71. “Selected Topics in Higgs Physics at the LHeC”, LHeC Workshop, Chavannes-de-Bogis, Switzerland, 20<sup>th</sup>-21<sup>st</sup> January 2014.
  72. “Higgs Physics in ep Collisions”, **(Plenary)**, EU-Russia Round Table, Dubna, Russia March 3<sup>th</sup>-5<sup>th</sup> 2014.
  73. “SM Higgs combination and Higgs properties in ATLAS”, PASCOS 2014, Warsaw June 24<sup>th</sup> 2014.
  74. “Higgs Searches at the LHeC”, **(Plenary)** LHeC IAC Meeting, CERN, June 26<sup>th</sup> 2014.
  75. “Higgs Physics Experimental Results”, **(Plenary, Lecture)** International Summer school on TeV Experimental Physics, Beijing, China, August 21<sup>st</sup> 2014.
  76. “Non-SUSY New Physics Searches at Collider Experiments”, **(Plenary, Lecture)** International Summer school on TeV Experimental Physics, Beijing, China, August 27<sup>th</sup> 2014.
  77. “Tensor Determination / CP-admixture”, HDAYS 2014, IFCA, Santander, September 10<sup>th</sup> 2014.
  78. “Status of the exploration of the Higgs sector at the LHC”, **(Plenary, discussion)** LHCDM-2015, Department of Theoretical Physics, IACS, Kolkata, February 9<sup>th</sup>-28<sup>th</sup> 2015

79. "Higgs Physics at FCC-he", LHeC Workshop, Chavannes-de-Bogis, 25<sup>th</sup>-26<sup>th</sup> June 2015.
80. "Probing new physics in the Higgs sector with effective field theories at the Large Hadron Collider", SAIP 2015 Conference, Port Elisabeth, June 30<sup>th</sup>- July 4<sup>th</sup> 2015.
81. "Status of the measurement of Higgs boson properties with the ATLAS detector", SAIP 2015 Conference, Port Elisabeth, June 30<sup>th</sup>- July 4<sup>th</sup> 2015.
82. "Yellow Report 4: planned contributions", **(Plenary)** The 10<sup>th</sup> Workshop of the LHC Higgs Cross Section Working Group, Geneva, July 15<sup>th</sup>-17<sup>th</sup> 2015.
83. "High-throughput electronics for the NICA complex and the ATLAS experience", **(Plenary)** South Africa-JINR Round Table "Physics at NICA", JINR, July 5<sup>th</sup> 2015.
84. "The Origin of mass in the Universe and the Higgs Boson", **(Plenary)** Maths, Science & ICT in Education, Johannesburg, August 17<sup>th</sup> and 18<sup>th</sup> 2015.
85. "High-throughput electronics for the NICA complex and the ATLAS experience", **(Plenary)** 4<sup>th</sup> South Africa – JINR Symposium, Few to Many Body-Systems: Models, Methods and Applications, JINR Dubna, September 21<sup>st</sup>-25<sup>th</sup> 2015.
86. "The Higgs boson and the Big Data problem" **(Key-note)**, CHPC National Meeting, CSIR IC, Pretoria, November 30<sup>th</sup>-December 4<sup>th</sup> 2015.
87. "LHeC" **(Plenary)** 3rd International Conference on the Initial Stages in High-Energy Nuclear Collisions Instituto Superior Técnico, Alameda Campus, Lisboa, Portugal 23<sup>rd</sup>-27<sup>th</sup> May 2016.
88. "Higgs Physics at the LHeC and FCC-he", ICHEP2016, Chicago, August 6<sup>th</sup> 2016.
89. "Phenomenological signatures of additional scalar bosons at the LHC" **(Plenary)**. Higgs Days at Santander, Spain, September 20<sup>th</sup> 2016.
90. "Higgs studies with electron-hadron colliders", HC2016, SLAC, San Francisco, 9<sup>th</sup>-12<sup>th</sup> November 2016.
91. "Higgs to  $\gamma\gamma$  with ATLAS" **(Plenary)**, HC2016, SLAC, San Francisco, 9<sup>th</sup>-12<sup>th</sup> November 2016.
92. "CERN research and capacity development programmes" **(Plenary)**, South Africa – Joint Institute for Nuclear Research, 10<sup>th</sup> year Collaboration Celebration, CSIR International Convention Centre, Pretoria, November 28<sup>th</sup> – December 1<sup>st</sup> 2016.
93. "The Madala Hypothesis and the production of multiple leptons at the LHC", Discovery Physics at the LHC, Kruger2016, Mpumalanga, December 4<sup>th</sup>-9<sup>th</sup> 2016.
94. "Higgs Boson couplings at the LHC" **(Plenary)**, 25<sup>th</sup> anniversary celebration of JINR in ATLAS, Budva, Montenegro, 24<sup>th</sup>-29<sup>th</sup> April 2017.
95. "The Large Hadron electron Collider (LHeC)", LHCP2017, Jiao Tong University, Shanghai, May 15<sup>th</sup>-20<sup>th</sup> 2017.
96. "LHC Higgs results" **(Lectures)**, CTEQ School on QCD and Electroweak Phenomenology, University of Pittsburgh July 18<sup>th</sup>-28<sup>th</sup> 2017.
97. "The production of additional bosons and the impact on the Large Hadron Collider" **(Plenary)**, HDAYS2017, Santander, September 18<sup>th</sup>-22<sup>nd</sup> 2017.
98. "The Discovery of the Higgs boson and the Big Data problem" **(Plenary)**, Multicore World 2018, Wellington, New Zealand, February 7<sup>th</sup>-9<sup>th</sup> 2018.
99. "FCC-eh and LHeC Overview" **(Plenary)**, FCC Week 2018, Beurs van Berlage, Amsterdam, April 9<sup>th</sup>-13<sup>th</sup> 2018.
100. "2HDM+S and implications on  $e^+e^-$  collisions", CEPC Workshop, Rome, Italy, May 24<sup>th</sup>-26<sup>th</sup> 2018.
101. "Understanding the production of multiple leptons at the LHC" **(Plenary)**, HDAYS2018, Santander, September 10<sup>th</sup>-14<sup>th</sup> 2018.
102. "New physics at the EW scale and the production of multiple leptons at the LHC" **(Plenary)**, New Trends in High Energy Physics, Budva, Montenegro, September 24<sup>th</sup>-30<sup>th</sup> 2018.
103. "Prospects for IEEE membership in (South) Africa", IEEE NPSS Administrative

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- Committee meeting, Sydney, Australia, November 10<sup>th</sup> 2018.
104. "Multi-lepton Anomalies at the LHC and New Physics at the EW Scale", HEPP2019, Nelson Mandela University, Port Elizabeth, January 30<sup>th</sup> 2019.
  105. "LHeC and FCCeh projects" (**Plenary**), Interpreting the LHC Run 2 data and Beyond", ICTP, Trieste, Italy, May 27<sup>th</sup>-31<sup>st</sup> 2019.
  106. "The Status of the Large Hadron Collider at CERN" (**Plenary**), SAIP, Polokwane, South Africa, July 11<sup>th</sup> 2019.
  107. "Interpretation of multi-lepton anomalies at the LHC" (Plenary), QFTHEP2019, Sochi, Russia, September 28<sup>th</sup> 2019.

### **(10) Seminars and Colloquia**

1. "Higgs at LHC", University of Chicago, USA, October 13<sup>th</sup> 2003.
2. "Higgs searches at the LHC" Institute of Nuclear Research, Moscow, Russia, November 10<sup>th</sup> 2003.
3. "Higgs Physics at the LHC, Fermi Lab, Chicago, USA, February 9<sup>th</sup> 2005.
4. "Higgs Searches with ATLAS", Cambridge University, UK, October 14<sup>th</sup> 2005.
5. "Higgs Searches with ATLAS", Oxford University, UK, October 18<sup>th</sup> 2005.
6. "Higgs Searches with ATLAS", Imperial College, UK, October 19<sup>th</sup> 2005.
7. "Higgs Physics with the ATLAS Detector at the LHC", Michigan State University, January 17<sup>th</sup> 2006.
8. "Higgs Physics with the ATLAS Detector at the LHC", University of Wisconsin, January 23<sup>rd</sup> 2006.
9. "Higgs Physics at the LHC", University of California Irvine, February 2<sup>nd</sup> 2006.
10. "Higgs Physics at the LHC", University of California San Diego, February 7<sup>th</sup> 2006.
11. "Higgs Physics with the ATLAS Detector at the LHC", Harvard University, March 16<sup>th</sup> 2006.
12. "Higgs Physics with the ATLAS Detector at the LHC", HEP Seminar, CIEMAT, Madrid, November 13<sup>th</sup>, 2006
13. "Higgs Physics in ATLAS at the LHC", HEP Seminar, Neve-Shalom, Israel, February 13<sup>th</sup> 2007.
14. "Higgs Physics in ATLAS at the LHC", HEP Seminar, Technion, Haifa, Israel, February 14<sup>th</sup> 2007.
15. "Missing ET reconstruction in ATLAS", HEP Seminar, University of Chicago, April 2<sup>nd</sup> 2007.
16. "Higgs Physics in ATLAS", HEP Seminar, IFIC, Valencia, Spain, June 9<sup>th</sup> 2007.
17. "Feasibility of  $H \rightarrow WW + \text{Jet}$  at the Tevatron", CDF Higgs discovery group, FermiLab, Chicago, September 14<sup>th</sup> 2007.
18. "Higgs Searches with the ATLAS Experiment at the LHC", EPFL, Lausanne, February 29<sup>th</sup> 2008.
19. "Status of Higgs Feasibility Studies at ATLAS", PSI, Zurich, Switzerland, November 11<sup>th</sup> 2008.
20. "Higgs Physics at ATLAS", ETH/UZH, Zurich, Switzerland, November 12<sup>th</sup> 2008.
21. "Prospects of Higgs discovery at the LHC", Yale University, January 27<sup>th</sup> 2009.
22. "Prospects of Higgs searches in ATLAS", University of Florida, October 16<sup>th</sup> 2009.

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23. "The start of the LHC era: first collisions and discovery potential", (**Colloquium**) Harish-Chandra Research Institute, January 11<sup>th</sup> 2010.
24. "Prospects of first limits on SM Higgs with ATLAS", Seminar, LAL, Orsay, July 5<sup>th</sup> 2010.
25. "The Roadmap to the Higgs with ATLAS", Seminar, University of Florida, October 29<sup>th</sup> 2010.
26. "Status of the LHC: a year of data taking", (**Colloquium**) Harish-Chandra Research Institute, January 14<sup>th</sup> 2011.
27. "First Higgs Results of Higgs Searches and Prospects for 2011/2012 with the ATLAS Detector at the LHC", Seminar, UW-Madison, February 25<sup>th</sup> 2011.
28. "Status of Higgs Searches with ATLAS", (**Colloquium** postponed to September 24<sup>th</sup> 2012), MIT, October 25<sup>th</sup> 2011.
29. "Results of Higgs Searches with ATLAS", (postponed) Seminar, USTC, China, December 2011.
30. "Recent Results for Higgs searches at the LHC", (**Colloquium**) Harish-Chandra Research Institute, December 16<sup>th</sup> 2011.
31. "Higgs Results from ATLAS", NPAC Seminar, UW-Madison, March 8<sup>th</sup> 2012.
32. "Higgs Results from ATLAS", IHEP, Beijing, China, August 17<sup>th</sup> 2012.
33. "Higgs Results from ATLAS", Center for High Energy Physics Tsinghua University, Beijing, China, August 15<sup>th</sup> 2012.
34. "Higgs results from ATLAS", University of the Witwatersrand, South Africa, August 2012.
35. "The Observation of a New Particle in the Search for the Standard Model Higgs Boson with the ATLAS Detector", Teilchentee-talk, Heidelberg, Germany, December 13<sup>th</sup> 2012.
36. "The discovery of the Higgs boson at the LHC", (**Colloquium**) Harish-Chandra Research Institute, December 9<sup>th</sup> 2013.
37. "Data flow at the ATLAS experiment at the LHC and the future of the Higgs boson", University of the Cape Town, South Africa, October 15<sup>th</sup> 2013.
38. "Evidence of  $H \rightarrow \tau\tau$  decay with the ATLAS Detector", Seminar at the Harish-Chandra Institute, December 5<sup>th</sup> 2013.
39. "Evidence for the Higgs decaying into tau leptons with the ATLAS detector and future prospects", HEP seminar, Delhi University, December 13<sup>th</sup> 2013.
40. "The Massive Affordable Computing Project", the CHPC, Cape Town, February 21<sup>st</sup> 2014.
41. "Exploration of the Tensor Structure of the Higgs boson to Weak Bosons", HEP seminar, University of the Witwatersrand, March 25<sup>th</sup> 2014.
42. "Exploration of the Higgs boson and the Physics case for the Large Hadron Electron Collider", Especial invited seminar, Tsinghua University, Beijing China, August 22<sup>nd</sup> 2014.
43. "The Higgs boson and the Status of the Large Hadron Electron Collider Project", Especial invited seminar, Zhejiang University, Hangzhou, China, August 25<sup>th</sup> 2014.
44. "Exploring the Tensor Structure of the Higgs Boson to Weak Bosons", HEP seminar, IHEP, Beijing, August 28<sup>th</sup> 2014.
45. "Anomalies in the Higgs boson data at the LHC and the potential for a new scalar with a mass around 300 GeV", HEP seminar, University of the Witwatersrand, May 26<sup>th</sup> 2015.

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46. "The compatibility of the LHC data with a scalar with a mass around 270 GeV and its possible connection with the X(750) excess", IFIC, Valencia, Spain, January 21<sup>st</sup> 2016.
47. "The compatibility of the LHC data with a scalar with a mass around 270 GeV and its possible connection with the X(750) excess", JINR, Dubna, Russia, January 25<sup>th</sup> 2016.
48. "The compatibility of the LHC data with a scalar with a mass around 270 GeV and its possible connection with the X(750) excess", Moscow State University, Moscow, Russia, January 26<sup>th</sup> 2016.
49. "The Madala hypothesis and new scalar bosons at the LHC", The Mandelstam and National Institutes for Theoretical Physics seminar, Wits, September 6<sup>th</sup> 2016.
50. "The Madala hypothesis and new scalar bosons at the LHC", Colloquium iThemba LABS, Cape Town, September 15<sup>th</sup> 2016.
51. "Phenomenological signatures of additional scalar bosons at the LHC", Seminar, Hong Kong University of Technology Institute of Advances Studies, January 20<sup>th</sup> 2017.
52. "Phenomenological signatures of additional scalar bosons at the LHC", HEP seminar, Harish Chandra Institute, February 8<sup>th</sup> 2017.
53. "Origin of Mass in the Universe and the Large Hadron Collider", (**Memorial lecture**) Harish Chandra Institute, February 10<sup>th</sup> 2017.
54. "Phenomenological signatures of additional scalar bosons at the LHC", HEP seminar, Delhi University, February 14<sup>th</sup> 2017.
55. "The production of additional bosons and the impact on the Large Hadron Collider", CTMP Seminar, University of Cape Town, March 3<sup>rd</sup> 2016.
56. "The production of additional bosons and the impact on Higgs physics at the LHC", Academia Sinica, Taiwan, May 23<sup>rd</sup> 2017.
57. "The discovery of a Higgs boson and the quest for new bosons at the LHC", (**Colloquium**) TIFR, Mumbai November 8<sup>th</sup> 2017
58. "Phenomenology of additional bosons and the impact on Higgs physics at the LHC", HEP seminar at the University of Sydney, February 12<sup>th</sup> 2018.
59. "The anomalous production of multiple-leptons and new bosons at the LHC", HEP seminar, Harish Chandra Institute, March 15<sup>th</sup> 2019.
60. "The anomalous production of multiple-leptons and new bosons at the LHC", Universite Catholique de Louvain, Belgium, April 18<sup>th</sup> 2019.
61. "The anomalous production of multiple-leptons and new bosons at the LHC", Seminar at School of Physics of the University of Johannesburg, Johannesburg, South Africa, July 26<sup>th</sup> 2019.

### **(11) In the Media**

Articles about my work in science

<http://hep.wits.ac.za/inthemediainthemediaphp>

Articles about my activities on UW campus in promotion of minorities

<http://www.diversity.wisc.edu/story.php?id=15814>

<http://www.news.wisc.edu/wisweek/22-Oct-2008/images/WW20081022.pdf>

<http://thelatinjournal.blogspot.com/2008/10/hispanic-faculty-and-student-ration.html>

<http://wispolitics.com/index.html?Article=139604>

<http://www.themadisontimes.com/articles/local-news/campus-summit-addresses-growing-latino-campus-population>