

# Dr. Ayan Paul

FELLOW @ DESY, HAMBURG & SENIOR SCIENTIST @ HUMBOLDT UNIVERSITÄT ZU BERLIN

Institut für Physik, Humboldt Universität zu Berlin, Notkestraße 15, 12489 Berlin, Germany.

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## Research Expertise

- *Charm dynamics*: CP violation, hadronic decays, final state interactions, leptonic and semileptonic decays.
- *Beauty dynamics*: Semileptonic and leptonic decays, decay distributions, tests of lepton flavour universality and BSM
- *Higgs and EW Physics*: Effective Field Theories, Higgs productions and decays, BSM and future colliders
- *Physics Computation*: Active developer for the statistical core (MCMC based Bayesian Analysis) and flavour physics in **HEPfit**

## Academic Appointments

### DESY

FELLOW

Hamburg, Germany

November 2017 - PRESENT

Delegated as *Senior Scientist* to the Humboldt Universität zu Berlin.

### INFN, Sezione di Roma I

POSTDOCTORAL FELLOW

Roma, Italy

September 2012 - October 2017

ERC Grant “NPFlavour”.

### University of Notre Dame du Lac

TEACHING ASSISTANT

Notre Dame IN, USA

August 2005 - December 2011

Employed full-time by the Department of Physics.

## Education

### University of Notre Dame du Lac, Department of Physics

PHD IN PHYSICS

Notre Dame, Indiana

2007 - 2012

Title of dissertation: *Charm Beyond the Standard Model*

PhD Advisor: *Prof. Ikaros I. Bigi*

### University of Notre Dame du Lac, Department of Physics

MS IN PHYSICS

Notre Dame, Indiana

2005 - 2007

### S. N. Bose National Center for Basic Sciences

M.Sc. IN PHYSICS

Calcutta, India

2003 - 2005

### Presidency College, University of Calcutta

B.Sc. IN PHYSICS

Calcutta, India

1999 - 2002

## Grants & Awards

|             |   |                    |
|-------------|---|--------------------|
| 2012        | <b>Research and Dissertation Award</b> , Dept. of Physics, University of Notre Dame du Lac                    | Notre Dame, IN USA |
| 2011        | <b>Notebaert Prof. Dev. Fund (II)</b> , Graduate School, University of Notre Dame du Lac                      | Notre Dame, IN USA |
| 2011        | <b>Notebaert Prof. Dev. Fund (I)</b> , Graduate School, University of Notre Dame du Lac                       | Notre Dame, IN USA |
| 2011        | <b>Joseph F. Downes Memorial Award</b> , Graduate School, University of Notre Dame du Lac                     | Notre Dame, IN USA |
| 2010        | <b>W. &amp; L. Stavropoulos Fellowship</b> , Graduate School, University of Notre Dame du Lac                 | Notre Dame, IN USA |
| 2010        | <b>Kaneb Outstanding Graduate Teaching Assistant Award</b> , Kaneb Center, University of Notre Dame du Lac    | Notre Dame, IN USA |
| 2009        | <b>Reilly Fellowship</b> , Graduate School, University of Notre Dame du Lac                                   | Notre Dame, IN USA |
| 2005        | <b>CSIR Junior Research Fellowship</b> , Center for Scientific and Industrial Research (HRDG, Govt. of India) | Calcutta, India    |
| 2005        | <b>University Lecturership</b> , National Eligibility Test (UGC-CSIR, Govt. of India)                         | Calcutta, India    |
| 2003 – 2005 | <b>Research Fellowship</b> , S. N. Bose National Center for Basic Sciences                                    | Calcutta, India    |

## Computational Skills and Experience

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| <b>Programming Languages</b>  | FORTRAN, C, C++ (Primary language for HEPfit), Python, Perl, shell scripting, Java Script  |
| <b>Parallel Computing</b>     | Open MPI and OpenMP (Used in HEPfit and BAT)   |
| <b>HEP Tools</b>              | MadGraph, FormCalc, FeynRules, FeynCalc, FeynArts, FeynHiggs, LoopTools, MCFM and several other public codes used in HEP   |
| <b>Libraries</b>              | ROOT, GSL, BOOST, BAT etc. (Used in HEPfit)  |
| <b>Functional Programming</b> | Mathematica, MatLab, form and R  |
| <b>Analytic Methods</b>       | Bayesian Analysis, Markov Chain Monte Carlo, Statistical Inference, Multivariate Methods   |
| <b>Code Moderation</b>        | Moderator for the core of the HEPfit code (statistical framework and the user interface.)  |
| <b>Flavour@HEPfit</b>         | Implemented flavour observables from all flavour sectors in HEPfit   |
| <b>Complex Networks</b>       | Network construction and analysis of the authors' collaboration network of all publications in Physical Review C during 2000 – 2006 with an aim to enhance inter-disciplinary and inter-institutional collaborations and for use in reports and proposals submitted to national funding agencies. (Project funded by JINA in 2017) |

Github repository for HEPfit: <https://github.com/silvest/HEPfit>.  
My contributions to HEPfit and other codes: <https://github.com/talismanbrandi>.

## Publications

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### Flavour Physics:

1. M. Ciuchini, A. Coutinho, M. Fedele, E. Franco, A. Paul, L. Silvestrini and M. Valli, *New Physics in  $b \rightarrow s\ell^+\ell^-$  confronts new data on Lepton Universality*, Eur. Phys. J. **C79** (2019) no.8, 719. [[arXiv:1903.09632](#)]
2. F. Buccella, A. Paul and P. Santorelli,  *$SU(3)_F$  breaking through FSI phases and CP asymmetries in  $D \rightarrow PP$  decays*, Phys. Rev. **D99** (2019) no.11, 113001. [[arXiv:1902.05564](#)].
3. M. Ciuchini, A. Coutinho, M. Fedele, E. Franco, A. Paul, L. Silvestrini and M. Valli, *Hadronic uncertainties in the  $B \rightarrow K^*\ell^+\ell^-$  decays*, Proceedings of the International Conference on  $B$ -Physics at Frontier Machines, BEAUTY 2018. PoS **BEAUTY2018** (2018) 044. [[arXiv:1809.03789](#)].
4. Belle II Collaboration (E. Kou (ed.) et. al.), *The Belle II Physics Book*. [[arXiv:1808.10567](#)].
5. M. Ciuchini, A. Coutinho, M. Fedele, E. Franco, A. Paul, L. Silvestrini and M. Valli, *On Hadronic uncertainties polluting the New Physics hunt in  $b \rightarrow s$  transitions*, Proceedings of the 7<sup>th</sup> Workshop on Theory, Phenomenology and Experiments in Flavour Physics: The Future of BSM Physics. Nucl. Part. Phys. Proc. **303-305** (2018) 8-13. [[inspirehep link](#)].
6. M. Ciuchini, M. Fedele, E. Franco, S. Mishima, A. Paul, L. Silvestrini and M. Valli, *Knowns and Unknowns in the Predictions for  $B \rightarrow K^*\ell^+\ell^-$* , Proceedings of the 6<sup>th</sup> Workshop on Theory, Phenomenology and Experiments in Flavour Physics: Interplay of Flavour Physics with electroweak symmetry breaking. Nucl. Part. Phys. Proc. **285-286** (2017) 45-49. [[inspirehep link](#)].
7. M. Ciuchini, A. Coutinho, M. Fedele, E. Franco, A. Paul, L. Silvestrini and M. Valli, *On Flavourful Easter eggs for New Physics hunger and Lepton Flavour Universality violation*, Eur. Phys. J. **C77** (2017) no.10, 688. [[arXiv:1704.05447](#)].
8. G. Casarosa, A. Di Canto and A. Paul, *Phenomenological and Experimental Developments in Charm Physics: The WG7 Report from CKM 2016*, PoS **CKM2016** (2017) 020. [[arXiv:1704.00041](#)].
9. M. Ciuchini, M. Fedele, E. Franco, S. Mishima, A. Paul, L. Silvestrini and M. Valli,  *$B \rightarrow K^*\ell^+\ell^-$  in the Standard Model: Elaborations and Interpretations*, PoS **ICHEP2016** (2016) 584. [[arXiv:1611.04338](#)].
10. A. Paul and D. Straub, *Constraints on new physics from radiative  $B$  decays*, JHEP**04** (2017) 027. [[arXiv:1608.02556](#)].
11. M. Ciuchini, M. Fedele, E. Franco, S. Mishima, A. Paul, L. Silvestrini and M. Valli,  *$B \rightarrow K^*\ell^+\ell^-$  decays at large recoil in the Standard Model: a theoretical reappraisal*. JHEP**06** (2016) 116. [[arXiv:1512.07157](#)].
12. A. Paul, *Lessons from charm dynamics*. Proceedings of **XII IFAE**, Cittadella Universitaria di Monserrato, Cagliari. 3rd - 5th April 2013. Il Nuo. Cim. **C 37** N. 1. [[arXiv:1308.5886](#)].
13. A. Paul, A. de La Puente and I. I. Bigi, *Manifestations of Warped Extra Dimension in Rare Charm Decays and Asymmetries*. Phys. Rev. **D90** (2014) 014035. [[arXiv:1212.4849](#)].
14. I. I. Bigi and A. Paul, *On CP Asymmetries in Two-, Three- and Four-Body  $D$  Decays*. JHEP**03** (2012) 021. [[arXiv:1110.2862](#)].
15. I. I. Bigi, A. Paul and S. Recksiegel, *Theoretical Conclusions from CDF Analyses of CP Violation in  $D^0 \rightarrow \pi^+\pi^-$ ,  $K^+K^-$  and Future Tasks*. JHEP**06** (2011) 089. [[arXiv:1103.5785](#)].

16. A. Paul, I. I. Bigi and S. Recksiegel, *On  $D \rightarrow X_u l^+ l^-$  within the Standard Model and Frameworks like the littlest Higgs model with T Parity*. Phys. Rev. **D 83** (2011) 114006. [arXiv:1101.6053].
17. A. Paul, I. I. Bigi and S. Recksiegel,  *$D^0 \rightarrow \gamma\gamma$  and  $D^0 \rightarrow \mu^+ \mu^-$  rates on an unlikely impact of the littlest Higgs model with T parity*. Phys. Rev. **D 82** (2010) 094006. [arXiv:1008.3141].

### Higgs and Electroweak Physics:

1. J. De Blas, G. Durieux, C. Grojean, J. Gu and A. Paul, *On the future of Higgs, electroweak and diboson measurements at lepton colliders*. arXiv:1907.04311. Submitted to JHEP for review.
2. J. de Blas et. al., *CLIC Potential for New Physics*. CERN Yellow Rep. Monogr. Vol. 3 (2018). [arXiv:1812.02093].
3. S. Gori, C. Grojean, A. Juste, A. Paul, *Heavy Higgs Searches: Flavor Matters*. JHEP**01** (2018) 108. [arXiv:1710.03752].
4. A. Azatov, C. Grojean, A. Paul and E. Salvioni, *Resolving gluon fusion loops at current and future hadron colliders*. JHEP**09** (2016) 123. [arXiv:1608.00977].
5. A. Azatov, C. Grojean, A. Paul and E. Salvioni, *Taming the off-shell Higgs boson*. J. Exp. Theor. Phys. 120 (2015). [arXiv:1406.6338].
6. A. Azatov and A. Paul, *Probing Higgs couplings with high  $p_T$  Higgs production*. JHEP**01** (2014) 014. [arXiv:1309.5273].

Up to date details of published articles can be found on [inspirehep.net](http://inspirehep.net): [Ayan.Paul.1](#)

## Teaching & Mentoring

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### SCHOOL LECTURES

September 2019 **Berlin QFT Master Class**, Electroweak Symmetry Breaking.

### THESIS SUPERVISION

- 2015 **Claudio Fabiani**, MS Thesis, Università di Roma La Sapienza.  
*The decays of  $B_{s,d}$  in the Standard Model*.
- 2014 **Marco Fedele**, MS Thesis, Università di Roma La Sapienza.  
*Study of the  $B \rightarrow K^{(*)} \ell^+ \ell^-$  decays in the Standard Model and Beyond*.

### TEACHING AT UNIVERSITY OF NOTRE DAME DU LAC

- 2006 – 2010 **Tutor** for the Academic Services for Student Athletes for *Physics* and *Mathematics*
- 2006 – 2011 **Instructor** for *FORTRAN* for REU Summer Students
- August 2014 Lectures on *CP Violation*
- 2005 - 2011 **Teaching Assistant** for undergraduate and graduate courses. (Kaneb Outstanding Graduate TA Award recipient)  
*Graduate Courses:*
  - Classical Mechanics
  - Special and General Relativity
  - Quantum Field Theory I
  - Quantum Mechanics
  - Particle Physics
  - Atomic Physics
  - Statistical Mechanics

### PRIVATE TUTORING

1999 – 2002 *Physics, Mathematics and Statistics* for high school students

## Academic and Outreach Activities

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- 2013 – Present **Referee for peer reviewed journals**, JHEP, Nucl. Phys. B and EPJ C
- September 2019 **DESY Theory Workshop 2019**, Chairperson for the Particle Phenomenology sessions Hamburg, Germany.
- 2016 **CKM 2016**, Convener of WG7 – Charm Physics Mumbai, India.
- 2012 **GPS Spring Conference 2012**, Founding Organizer Notre Dame IN, USA.
- 2011-2012 **Graduate Physics Students Association**, Member of Founding Committee Notre Dame IN, USA.
- 2010-2012 **Science Outreach**, Judge for several science fairs for junior and middle school students Notre Dame IN, USA.
- 2007-2008 **Graduate Student Union**, Representative for the Physics Department Notre Dame IN, USA.
- 2003-2005 **Institute Sports Committee**, Sports equipments acquisition and auditing at S N Bose Kolkata, India.  
National Center for Basic Sciences

## Presentations

### PLENARY TALKS (4)

- 2<sup>nd</sup> December 2016 **CKM 2016**, “A Summary on Charm Dynamics from WG7” *Mumbai, India.*  
6<sup>th</sup> September 2016 **CHARM 2016**, “Theoretical aspects on NP search in rare and (semi-)leptonic decays” *Bologna, Italy.*  
4<sup>th</sup> April 2013 **XII IFAE, Cittadella Universitaria di Monerrato**, “A Higgs and the World of Flavour” *Cagliari, Italy.*  
16<sup>th</sup> January 2013 **XX DAE-BRNS HEP Symposium**, “For When the Bells toll...” *Santiniketan, India.*

### INVITED TALKS (12)

- 23<sup>rd</sup> July 2018 **Higgs Hunting 2018**, “Flavour Physics meets Heavy Higgs Searches” *Orsay-Paris, France.*  
24<sup>th</sup> May 2018 **HXSWG Offshell Meetings: BSM/EFT studies**, “Looking Inside Gluon Fusion Loops” *Geneva, Switzerland.*  
9<sup>th</sup> November 2017 **LHCb Implications 2017**, “CP violation in charm: from Rags to Riches” *Geneva, Switzerland.*  
30<sup>th</sup> May 2017 **Beyond the LHCb Phase-1 Upgrade**, “The On-Shell Story” *Isola d’Elba, Italy.*  
23<sup>rd</sup> May 2016 **4<sup>th</sup> B2TiP Workshop**, “Prospects of estimating hadronic uncertainties in  $B \rightarrow K^* \gamma$ ” *Pittsburgh, USA.*  
9<sup>th</sup> March 2016 **Towards the Theory of Flavour**, “Musings on the Future of Beauty and Charm Dynamics” *Munich, Germany.*  
29<sup>th</sup> October 2015 **3<sup>rd</sup> B2TiP Workshop**, “An Introduction to HEPfit” *Tsukuba, Japan.*  
27<sup>th</sup> April 2015 **2<sup>nd</sup> B2TiP Workshop**, “Tutorial on SusyFit” *Krakow, Poland.*  
27<sup>th</sup> April 2015 **2<sup>nd</sup> B2TiP Workshop**, “Diagrammatic approaches to understanding the SU(3) framework” *Krakow, Poland.*  
25<sup>th</sup> February 2015 **New Physics at Belle II**, “An Introduction to SusyFit” *Karlsruhe, Germany.*  
10<sup>th</sup> December 2014 **The landscape of Flavour Physics towards the high intensity era**, “The Charm of the Future” *Pisa, Italy.*  
18<sup>th</sup> November 2011 **Workshop on Antiproton Physics at the Intensity Frontier**, “TAPAS and Charm Physics” *Fermilab, Batavia, USA*

### SEMINARS (21)

- 11<sup>th</sup> January 2019 **IACS**, “Looking Inside Gluon Fusion Loops for Effective Higgs Couplings” *Kolkata, India.*  
15<sup>th</sup> August 2018 **Arizona State University**, “Higgs Dynamics with Effective Field Theories” *Tempe, USA.*  
7<sup>th</sup> May 2018 **IFIC**, “Flavour@HEPfit” *Valencia, Spain.*  
25<sup>th</sup> January 2018 **TIFR**, “Flavour Physics meets Heavy Higgs Searches” *Mumbai, India.*  
10<sup>th</sup> July 2015 **CERN**, “ $B \rightarrow K^* \mu^+ \mu^-$  decays in the Standard Model: a theoretical reappraisal” *Geneva, Switzerland.*  
15<sup>th</sup> May 2013 **University of Edinburgh**, “The Industrial Revolution for Charm: From Sweatshops to Factories” *Edinburgh, UK.*  
21<sup>st</sup> August 2012 **IMSc**, “Flavour in the Warped Extra Dimension” *Chennai, India.*  
9<sup>th</sup> July 2012 **IMSc**, “Prospects of Charm” *Chennai, India.*  
21<sup>st</sup> May 2012 **Università di Roma La Sapienza**, “Charm Beyond the Standard Model” *Roma, Italy.*  
22<sup>nd</sup> December 2011 **University of Calcutta**, “Charm Dynamics: the Today and the Tomorrow” *Calcutta, India.*  
21<sup>st</sup> December 2011 **University of Calcutta**, “Little Higgs Models; and with T Parity too...!!” *Calcutta, India.*  
19<sup>th</sup> December 2011 **SINP**, “Yet another Era of Charm Physics” *Calcutta, India.*  
1<sup>st</sup> December 2011 **TIFR**, “Charm: A Portal for ND” *Mumbai, India.*  
15<sup>th</sup> November 2011 **University of Notre Dame du Lac**, “ND @ ND” *Notre Dame IN, USA.*  
22<sup>nd</sup> March 2011 **Argonne National Laboratory**, “LHT and Charm: the Expected, the Unexpected and the Gamble” *Argonne IL, USA.*  
17<sup>th</sup> February 2011 **Michigan State University**, “LHT and Charm: Hopes from a Pocket Pair of Twos” *East Lansing MI, USA.*  
14<sup>th</sup> February 2011 **University of Illinois at Urbana Champaign**, “LHT and Charm: Gambling with a Hand that Others have Folded” *Urbana IL, USA.*  
16<sup>th</sup> December 2010 **Fermilab**, “LHT and Charm: Gambling in Standard Model’s Backyard” *Batavia IL, USA.*  
2<sup>nd</sup> November 2010 **University of Notre Dame du Lac**, “Not LHT but LHT-like... and beyond” *Notre Dame IN, USA.*  
8<sup>th</sup> December 2009 **University of Notre Dame du Lac**, “LHT @ Work: Unleashing the Jack in the Box” *Notre Dame IN, USA.*  
1<sup>st</sup> July 2005 **SINP**, “Simplicial Homology and its Application to Electrical and Electronic Circuits” *Calcutta, India.*

### CONTRIBUTED TALKS (17)

- 12<sup>th</sup> July 2019 **EPS 2019**, “EFT Fits for Higgs and EW @FCC-ee” *Ghent, Belgium.*  
11<sup>th</sup> July 2019 **EPS 2019**, “Disentangling Higgs and EW Measurements at Future Lepton Colliders” *Ghent, Belgium.*  
7<sup>th</sup> June 2019 **WIN 2019**, “Disentangling Higgs and EW Measurements at Future Lepton Colliders” *Bari, Italy.*  
23<sup>rd</sup> May 2018 **Planck 2018**, “Flavour Physics meets Heavy Higgs Searches” *Bonn, Germany.*  
28<sup>th</sup> November 2017 **Terascale Workshop**, “Flavour Physics meets Heavy Higgs Searches” *Hamburg, Germany.*  
7<sup>th</sup> July 2017 **EPS 2017**, “ $SU(3)_F$  Breaking through Final State Interactions and CP Asymmetries in  $D \rightarrow PP$  Decays” *Venice, Italy.*

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|------------------------------|---|---------------------|
| 6 <sup>th</sup> July 2017    | <b>EPS 2017</b> , “Flavour Physics meets Heavy Higgs Searches”                                      | Venice, Italy.      |
| 6 <sup>th</sup> August 2016  | <b>ICHEP 2016</b> , “ $b \rightarrow s$ transitions in the Standard Model and Beyond”               | Chicago IL, USA.    |
| 4 <sup>th</sup> August 2016  | <b>ICHEP 2016</b> , “Higgs productions in the gluon fusion channel: a complete EFT analysis”        | Chicago IL, USA.    |
| 17 <sup>th</sup> June 2016   | <b>LHCP 2016</b> , “Test of the Standard Model and the Search for New Physics Using UTfit”          | Lund, Sweden.       |
| 25 <sup>th</sup> August 2015 | <b>SUSY 2015</b> , “A critical examination of the $SU(3)$ framework in the hadronic decays of $D$ ” | Tahoe City CA, USA. |
| 25 <sup>th</sup> August 2015 | <b>SUSY 2015</b> , “An Introduction to HEPfit”  | Tahoe City CA, USA. |
| 24 <sup>th</sup> July 2015   | <b>EPS 2015</b> , “A critical examination of the $SU(3)$ framework in the hadronic decays of $D$ ”  | Vienna, Austria.    |
| 23 <sup>rd</sup> July 2015   | <b>EPS 2015</b> , “Questioning the anomalies in $B \rightarrow K^* \mu^+ \mu^-$ decays”             | Vienna, Austria.    |
| 20 <sup>th</sup> May 2015    | <b>CHARM 2015</b> , “Charm loop contributions in $B \rightarrow K^* \mu^+ \mu^-$ decays”            | Detroit MI, USA.    |
| 19 <sup>th</sup> May 2015    | <b>CHARM 2015</b> , “A case for $SU(3)$ in $D \rightarrow PP$ decays”                               | Detroit MI, USA.    |
| 28 <sup>th</sup> May 2014    | <b>Planck 2014</b> , “Probing Higgs couplings with high $p_T$ Higgs production”                     | Paris, France.      |

## Workshops & Conferences

|                |   |                      |
|----------------|---|----------------------|
| October 2019   | <b>Implications of LHCb measurements and future prospects 2019</b> , Conference on Flavour Physics.     | Geneva, Switzerland. |
| September 2019 | <b>Quantum field theory meets gravity</b> , DESY Theory Workshop.                                       | Hamburg, Germany.    |
| July 2019      | <b>EPS 2019</b> , Conference on High Energy Physics.  | Ghent, Belgium.      |
| June 2019      | <b>WIN 2019</b> , International Workshop on Weak Interactions and Neutrino.                             | Bari, Italy.         |
| October 2018   | <b>Implications of LHCb measurements and future prospects 2018</b> , Conference on Flavour Physics.     | Geneva, Switzerland. |
| September 2018 | <b>Beyond Standard Model: Where do we go from here?</b> , Conference on High Energy Physics.            | Firenze, Italy.      |
| July 2018      | <b>Higgs Hunting 2018</b> , Conference on High Energy Physics.  | Orsay-Paris, France. |
| April 2018     | <b>Planck 2018</b> , Conference on High Energy Physics.   | Bonn, Germany.       |
| November 2017  | <b>Terascale Workshop</b> , Helmholtz Alliance Annual Meeting   | Hamburg, Germany.    |
| October 2017   | <b>Implications of LHCb measurements and future prospects 2017</b> , Conference on Flavour Physics.     | Geneva, Switzerland. |
| July 2017      | <b>EPS 2017</b> , Conference on High Energy Physics.  | Venice, Italy.       |
| May 2017       | <b>Beyond the LHCb Phase-1 Upgrade</b> , Conference on Flavour Physics.                                 | Isola d'Elba, Italy. |
| December 2016  | <b>CKM 2016</b> , Conference on Flavour Physics.  | Mumbai, India.       |
| September 2016 | <b>CHARM 2016</b> , Conference on Charm Physics.  | Bologna, Italy.      |
| August 2016    | <b>ICHEP 2016</b> , Conference on High Energy Physics.  | Chicago IL, USA      |
| June 2016      | <b>LHCP 2016</b> , 4 <sup>th</sup> Annual Large Hadron Collider Physics Conference.                     | Lund, Sweden.        |
| June 2016      | <b>Flavour and Electroweak Symmetry Breaking</b> , Workshop on Flavour Physics.                         | Anacapri, Italy.     |
| April 2016     | <b>4<sup>th</sup> B2TiP Workshop</b> , Belle Flavour Factory Workshop.                                  | Pittsburgh, USA.     |
| April 2016     | <b>Higgs Tasting Workshop</b> , Workshop on Higgs Physics.  | Benasque, Spain.     |
| March 2016     | <b>Toward The Theory of Flavour</b> , Munich, Germany.  | Benasque, Spain.     |
| April 2016     | <b>3<sup>rd</sup> B2TiP Workshop</b> , Belle Flavour Factory Workshop.                                  | Tsukuba, Japan.      |
| November 2015  | <b>Implications of LHCb measurements and future prospects 2015</b> , Conference on Flavour Physics.     | Geneva, Switzerland. |
| September 2015 | <b>Gearing up for LHC13</b> , Workshop on physics at the LHC.   | Firenze, Italy.      |
| August 2015    | <b>SUSY 2015</b> , Conference on High Energy Physics.   | Tahoe City CA, USA.  |
| July 2015      | <b>EPS 2015</b> , Conference on High Energy Physics.  | Vienna, Austria.     |
| May 2015       | <b>CHARM 2015</b> , Conference on Charm Physics.  | Detroit MI, USA.     |
| April 2015     | <b>2<sup>nd</sup> B2TiP Workshop</b> , Belle Flavour Factory Workshop.                                  | Cracovia, Poland.    |
| February 2015  | <b>New Physics at Belle II</b> , Belle II meeting.  | Karlsruhe, Germany.  |
| December 2014  | <b>The landscape of Flavour Physics towards the high intensity era</b> , Conference on Flavour Physics. | Pisa, Italy.         |
| April 2013     | <b>XII IFAE</b> , Conference on High Energy Physics.  | Cagliari, Italy.     |
| July 2011      | <b>CTEQ Workshop 2011</b> , Summer School on QCD Analysis and Phenomenology                             | Madison WI, USA.     |
| June 2011      | <b>LHC – Fermilab HCP</b> , Sixth School on Hadron Collider Physics.                                    | Geneva, Switzerland. |
| May 2011       | <b>MadGraph Spring 2011</b> , Workshop for MadGraph and FeynRules developers.                           | Batavia IL, USA      |
| May 2011       | <b>SLAC Summer Institute</b> , “Nu: Nature’s Mysterious Messengers”                                     | Menlo Park CA, USA   |

## List of Teaching References

|                         |   |                           |
|-------------------------|---|---------------------------|
| <b>Morten Eskildsen</b> | Professor, University of Notre Dame du Lac.           | [email: eskildsen@nd.edu] |
| <b>Umesh Garg</b>       | Professor, University of Notre Dame du Lac.           | [email: garg@nd.edu]      |
| <b>Kevin Lannon</b>     | Associate Professor, University of Notre Dame du Lac. | [email: klannon@nd.edu]   |
| <b>Kathie Newmann</b>   | Professor, University of Notre Dame du Lac.           | [email: newman@nd.edu]    |

## Selected List of Research Collaborators

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|---------------------------|--|---|
| <b>Aleksandr Azatov</b>   | Staff, Theoretical Particle Physics, SISSA.                                | [email: aleksandr.azatov@sissa.it]      |
| <b>Ikaros I. Bigi</b>     | Emeritus Professor, University of Notre Dame du Lac.                       | [email: ibigi@nd.edu]                   |
| <b>Marco Ciuchini</b>     | Direttore, INFN Sezione di Roma III.                                       | [email: marco.ciuchini@roma3.infn.it]   |
| <b>Enrico Franco</b>      | Primo ricercatore, INFN Sezione di Roma I.                                 | [email: enrico.franco@roma1.infn.it]    |
| <b>Christophe Grojean</b> | Lead Scientist, DESY, Hamburg (Professor, Humboldt Universität zu Berlin). | [email: christophe.grojean@desy.de]     |
| <b>Luca Silvestrini</b>   | Dirigente di ricerca, INFN Sezione di Roma I.                              | [email: luca.silvestrini@roma1.infn.it] |