

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

Computational Skills and Experience

Programming Languages	FORTRAN, C, C++ (Primary language for HEPfit), Python, Perl, shell scripting, Java Script
Parallel Computing	Open MPI and OpenMP (Used in HEPfit and BAT)
HEP Tools	MadGraph, FormCalc, FeynRules, FeynCalc, FeynArts, FeynHiggs, LoopTools, MCFM and several other public codes used in HEP
Libraries	ROOT, GSL, BOOST, BAT etc. (Used in HEPfit)
Functional Programming	Mathematica, MatLab, form and R
Analytic Methods	Bayesian Analysis, Markov Chain Monte Carlo, Statistical Inference, Multivariate Methods
Code Moderation	Moderator for the core of the HEPfit code (statistical framework and the user interface.)
Flavour@HEPfit	Implemented flavour observables from all flavour sectors in HEPfit
Complex Networks	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

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 7th 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 6th 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*: *Ayan.Paul.1*

Teaching & Mentoring

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

- 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.*
- 2012-2016 **Content Editor**, Global editions of Physics textbooks for Pearson Education. *Pearson 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)

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

INVITED TALKS (12)

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

SEMINARS (21)

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

CONTRIBUTED TALKS (17)

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

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

Workshops & Conferences

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

List of Teaching References

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

Selected List of Research Collaborators

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