

**BLV2013 Scientific Program**

**2013 International Workshop on Baryon and  
Lepton Number Violation:  
From the Cosmos to the LHC**



Particle and Astro-Particle Physics Division  
Max-Planck Institute for Nuclear Physics (MPIK)  
Heidelberg, Germany

Organizing Committee:

E. Akhmedov, A. Berneiser, P. Fileviez Perez (co-chair), Y. Kamyshev, J. Kopp, M. Lindner (co-chair),  
T. Plehn, G. Raffelt, W. Rodejohann, A. Rubbia (co-chair), D. Schmidt, B. Schwarz, T. Schwetz, A.  
Smirnov, H. Watanabe, C. Weinheimer, M. B. Wise

## BLV2013 Scientific Program

April 8	
8:45	Bus from Crowne Plaza to the MPIK
9:00-9:30	Registration
9:30-9:45	<a href="#">M. Lindner</a> 'Welcome'
Chair: E. Akhmedov	
9:45-10:20	<a href="#">P. Nath</a> 'Proton decay, baryogenesis and dark matter'
10:20-10:55	<a href="#">M. Miura</a> 'Plans and prospects for the Hyper-Kamiokande detector'
10:55-11:30	<i>Coffee Break</i>
Chair: P. Nath	
11:30-12:05	<a href="#">J. Hisano</a> 'Proton decay in SUSY GUTs revisited'
12:05-12:40	<a href="#">M. J. Ramsey-Musolf</a> 'Electroweak baryogenesis: developments and prospects'
12:40-14:20	<i>Lunch</i>
14:20-15:20	Parallel Talks
15:20-15:40	<i>Coffee Break</i>
15:40-17:00	Parallel Talks
Chair: J. Kopp	
17:00-17:35	<a href="#">W. Buchmuller</a> 'Cosmological B-L breaking: baryon asymmetry, dark matter and gravitational waves'
17:35-18:10	<a href="#">G. Raffelt</a> 'Axions'
18:30	Bus from the MPIK to Crowne Plaza

## BLV2013 Scientific Program

April 8	Lecture Hall	Seminar Room 1	Seminar Room 2
	<i>Chair: M. Malinsky</i>	<i>Chair: S. Rydbeck</i>	<i>Chair: F. Deppisch</i>
14:20-14:40	<a href="#">I. Dorsner</a> Scalar leptoquark in SU(5)	<a href="#">D. Aristizabal</a> Novel bilinear R-parity violating sneutrino decays	<a href="#">G. Cavoto</a> Searching for the mu to e gamma decay with the present and future MEG experiment
14:40-15:00	<a href="#">C. Arbeláez</a> Supersymmetric SO(10) GUTs with sliding scales	<a href="#">G. Durieux</a> Three-generation baryon and lepton number violation at the LHC	<a href="#">J. Racker</a> Baryogenesis at low energies
15:00-15:20	<a href="#">J. Arnold</a> Simplified models with baryon number violation but no proton decay	<a href="#">L. Basso</a> A natural Z' model with inverse seesaw and leptonic dark matter	<a href="#">S. Biondini</a> An effective field theory for non-relativistic Majorana neutrinos
15:20-15:40	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>
	<i>Chair: I. Dorsner</i>	<i>Chair: S. Hannestad</i>	<i>Chair: H. Watanabe</i>
15:40-16:00	<a href="#">M. Malinsky</a> TeV-scale coloured octet from the minimal SO(10) GUT: a two-loop picture	<a href="#">S. Das</a> Dark matter from degenerate micronuggets of ultralight sterile neutrinos	<a href="#">F. Deppisch</a> Probing neutrino properties with neutrinoless double beta decay and cosmological observations
16:00-16:20	<a href="#">L. Di Luzio</a> Towards gauge coupling unification in minimal SU(5) at three-loop accuracy	<a href="#">B. Dev</a> Light and superlight sterile neutrinos	<a href="#">R. Ehrlich</a> The Mu2e experiment
16:20-16:40	<a href="#">D. Emmanuel-Costa</a> Minimal adjoint-SU(5) x Z <sub>4</sub> GUT model	<a href="#">J. Heeck</a> Multicomponent dark matter and light sterile neutrinos	<a href="#">E. Ferri</a> Preliminary results of MARE-1 in Milano
16:40-17:00	<a href="#">J. Stöckel</a> LFV and the Higgs mass in a SO(10) GUT model	<a href="#">A. Watanabe</a> Heavy neutrino search in accelerator-based experiments	<a href="#">W. Maneschg</a> Borexino: Latest results and future prospects

## BLV2013 Scientific Program

April 9	
8:45	Bus from Crowne Plaza to the MPIK
Chair: W. Porod	
9:00-9:35	<a href="#">S. Caron</a> 'Higgs and searches for new physics at the LHC'
9:35-10:10	<a href="#">J. Aguilar-Saavedra</a> 'Lepton number (non)conservation in seesaw models at LHC'
10:10-10:45	<a href="#">S. Spinner</a> 'LHC signatures for the minimal theory of R-parity'
10:45-11:15	<i>Coffee Break</i>
Chair: M. J. Ramsey-Musolf	
11:15-11:50	<a href="#">M. Hirsch</a> 'Double beta decay and the LHC'
11:50-12:25	<a href="#">S. Hannestad</a> 'Neutrino cosmology after Planck'
12:25-13:00	<a href="#">T. Patzak</a> 'LAGUNA and LBNO: Towards the next generation neutrino observatory in Europe'
13:00-14:30	<i>Lunch</i>
14:30-15:30	<a href="#">Parallel Talks</a>
15:30-16:00	<i>Coffee Break</i>
16:00-17:20	<a href="#">Parallel Talks</a>
18:30	Bus from the MPIK to the Kulturbrauerei
19:00-21:00	Dinner at the Kulturbrauerei

## BLV2013 Scientific Program

April 9	Lecture Hall	Seminar Room 1	Seminar Room 2
	<i>Chair: H. Zhang</i>	<i>Chair: H. Paes</i>	<i>Chair: T. Marrodan</i>
14:30-14:50	<a href="#">M. Garny</a> Towards a quantum treatment of leptogenesis	<a href="#">J. Harrison</a> Searches for lepton and baryon number violating decays at LHCb	<a href="#">S. Goswami</a> Neutrinoless double-beta decay in TeV scale Left-Right symmetric models
14:50-15:10	<a href="#">K. Ishiwata</a> Baryogenesis with higher dimension operators	<a href="#">W. Feldmeier</a> Results of EXO-200	<a href="#">S. Wagner</a> The Double Chooz Experiment
15:10-15:30	<a href="#">M. Duerr</a> A Gauge Theory for Baryon and Lepton Numbers	<a href="#">S. Mohanty</a> Explanation of UHE neutrino deficit via mirror world pseudo-Dirac neutrinos	<a href="#">A. Nucciotti</a> Status of the CUORE-0 and CUORE neutrinoless double beta decay searches
15:30-16:00	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>
	<i>Chair: S. Tulin</i>	<i>Chair: M. Duerr</i>	<i>Chair: M. Hirsch</i>
16:00-16:20	<a href="#">N. Bozorgnia</a> Features in directional dark matter detection	<a href="#">A. Meroni</a> Multiple CP non-conserving mechanisms of betabeta-decay and nuclei with largely different nuclear matrix elements	<a href="#">D. Hernandez</a> Lepton flavor through discrete symmetries
16:20-16:40	<a href="#">A. Vicente</a> Sterile neutrinos and violation of lepton flavor universality	<a href="#">M. Mitra</a> Neutrinoless double beta decay and sterile neutrinos	<a href="#">M. Holthausen</a> CP and discrete flavour symmetries
16:40-17:00	<a href="#">D. Schmidt</a> Radiative seesaw with local symmetry for neutrino masses and dark matter	<a href="#">Y. Muramatsu</a> GUT model discrimination by nucleon decay via dim 6 effective interactions	<a href="#">K. S. Lim</a> Lepton mixing patterns from a scan of finite discrete groups
17:00-17:20	<a href="#">L. Ubaldi</a> WIMP dark matter and baryogenesis		

## BLV2013 Scientific Program

April 10	
8:45	Bus from Crowne Plaza to the MPIK
Chair: G. Raffelt	
9:30-10:05	<a href="#">Y. Kamyshev</a> ‘Search for neutron-antineutron transformation at Fermilab project X’
10:05-10:40	<a href="#">Z. Berezhiani</a> ‘Baryon number violation and ultra high energy cosmic rays’
10:40-11:15	<a href="#">M. Schumann</a> ‘Hunting for dark matter with underground detectors’
11:15-11:45	<i>Coffee Break</i>
Chair: M. Schumann	
11:45-12:20	<a href="#">T. Schwetz</a> ‘The decade of the WIMP’
12:20-12:55	<a href="#">S. Tulin</a> ‘Unified mechanisms for dark matter and B violation’
12:55-14:30	<i>Lunch</i>
14:30-15:30	Parallel Talks
15:30-16:00	<i>Coffee Break</i>
16:00-17:00	Parallel Talks
Chair: Y. Kamyshev	
17:00-17:35	<a href="#">S. Davidson</a> ‘Lepton flavour violation’
17:35-18:10	<a href="#">A. Schoening</a> ‘LFV Muon Decays and a New Experiment to Search for $\mu \rightarrow e e e$ (Mu3e)’
18:30	Bus from the MPIK to the Crowne Plaza

## BLV2013 Scientific Program

April 10	Lecture Hall	Seminar Room 1	Seminar Room 2
	<i>Chair: L. Lopez Honorez</i>	<i>Chair: D. Schmidt</i>	<i>Chair: P. Gu</i>
14:30-14:50	<a href="#">B. O'Leary</a> How it can be difficult to avoid sneutrino VEVs in extended models	<a href="#">N. Quintero</a> Lepton number violating decays of heavy flavors	<a href="#">S. Law</a> Radiative inverse seesaw via exotic lepton triplets
14:50-15:10	<a href="#">Y. Omura</a> Gauged leptophobic U(1)' models	<a href="#">I. Tamborra</a> What can we learn from the diffuse supernova neutrino background?	<a href="#">E. Molinaro</a> Seesaw, dark matter and leptogenesis at the TeV scale
15:10-15:30	<a href="#">S. Rydbeck</a> Long-lived higgsinos as probes of gravitino dark matter at the LHC	<a href="#">J. Hartnell</a> NOvA: Exploring neutrino and antineutrino oscillations	<a href="#">T. Spadaro</a> Lepton flavour universality and lepton flavour conservation tests in kaon decays
15:30-16:00	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>
	<i>Chair: B. Stech</i>	<i>Chair: J. Arnold</i>	<i>Chair: M. Holthausen</i>
16:00-16:20	<a href="#">L. Lopez Honorez</a> Flavored dark matter versus scalar portal	<a href="#">T. Toma</a> Two loop radiative seesaw model with B-L symmetry	<a href="#">K. Schubert</a> CP, T and CPT symmetry studies with the BABAR experiment
16:20-16:40	<a href="#">J. Smirnov</a> Improving electroweak fits with TeV scale sterile neutrinos	<a href="#">S. Boeser</a> A super-dense detector for SN neutrinos and proton decay in the Antarctic ice	<a href="#">F. Wilson</a> Studies on lepton-violating processes with BABAR
16:40-17:00	<a href="#">M. Nemevsek</a> Neutrino Mass Origin and Left-Right Symmetry	<a href="#">J. Hosek</a> Composite pseudo Nambu-Goldstone boson at 125 GeV	<a href="#">E. Shintani</a> Proton decay matrix element in lattice QCD

## BLV2013 Scientific Program

April 11	
8:45	Bus from the Crowne Plaza to the MPIK
Chair: S. Davidson	
9:00-09:35	<a href="#">W. Maneschg</a> 'Status and advancements in neutrino-less double beta decay research'
9:35-10:10	<a href="#">T. Lasserre</a> 'Sterile neutrinos: where are we, where do we go?'
10:10-10:45	<a href="#">A. Smirnov</a> 'Neutrinos: inverting mass hierarchy'
10:45-11:15	<i>Coffee Break</i>
Chair: M. Lindner	
11:15-11:50	<a href="#">M. Shaposhnikov</a> 'Sterile neutrinos as the origin of dark and baryonic matter'
11:50-12:40	<a href="#">G. Senjanovic</a> 'Final Talk'
12:40-12:45	<a href="#">P. Fileviez Perez</a> 'Final Remarks'
13:00	Bus from the MPIK to the Crowne Plaza
13:00-14:30	<i>Lunch</i>
14:30	Bus from the MPIK to the Crowne Plaza