

**”BEYOND the DESERT” – Accelerator,
Non–Accelerator and Space Approaches
BEYOND the NEXT MILLENIUM**

Castle Ringberg, Tegernsee,
GERMANY, June 6–12, 1999

PROGRAM

Monday, June 7

8:00 BREAKFAST

9:00 **H.V.Klapdor-Kleingrothaus**

(MPI Heidelberg; Chairman of BEYOND'99): Opening Remarks

9:05 – 9:35 **Hewett Jo-A. (Stanford)**: *”The Standard Model and Why We
Should not Believe It”*

SUSY/SUGRA phenomenology I

9:35 – 10:10 **Mohapatra R.N. (Maryland)**: *”Supersymmetric Origin of
Flavor Mixing, and Other Recent Developments in SUSY”*

10:05 – 10:30 **Huitu K. (Helsinki U.)**: *”Phenomenology of Light Higgs
Bosons in Supersymmetric Left–Right Models”*

10:30 – 11:00 COFFEE BREAK

Search for New Physics at Colliders and Supercolliders I

11:00 – 11:30 **Sirois Y. (LPNHE)**: *”Search for Beyond Standard Model
Physics at Present Colliders”*

11:30 – 12:00 **Wagner A. (DESY)**: *”Physics with the Linear Collider”*

12:00 – 12:30 **Denegri D. (LHC)**: *”Search for New Physics at LHC”*.

12:30 LUNCH

Grand Unified Theories and Beyond

14:00 – 14:30 **Frampton P. (N.Carolina):** *"String Duality and Conformal Gauge Theories"*

14:30 – 15:00 **Nath P. (Boston):** *"GUTs and B and L Violation"*

15:00 – 15:25 **Vergados J. (Ioannina):** *"Neutrinoless Double Beta Decay in the Context of Current Gauge Theories"*

15:25 – 15:55 COFFEE BREAK

15:55 – 16:25 **Rizzo Th. (SLAC):** *"More and more Indirect Signals for Extra Dimensions at Colliders"*

Search for New Physics at Colliders and Supercolliders II

16:25 – 16:50 **Cline D. (Los Angeles):** *"Physics, $\mu + \mu^-$ Colliders and a $\mu + -$ Storage Ring Neutrino Factory"*

Fundamental Symmetries I: CP Violation, Lorentz Invariance

16:50 – 17:10 **Pilaftsis A. (Muenchen):** *"CP Violation in the Higgs Sector of the Minimal Supersymmetric Standard Model (MSSM)"*

17:10 – 17:40 **Kostelecky A. (Bloomington):** *"Review of CPT and Lorentz Symmetries"*

Axions

17:40 – 18:10 **Sikivie P. (Florida):** *(Axions etc)*

18:10 – 18:25 **Battye R. (Cambridge):** *"Axions"*

19:00 **BAVARIAN FOLK PARTY**

Traditional Bavarian music & food

Tuesday, June 8

8:00 BREAKFAST

Neutrino Masses and Mixing

9:00 – 9:35 **Lola S. (CERN):** *"Neutrino Mass Textures and Realistic String Models"*

9:35 – 10:05 **Yasuda O. (Metr.U.,Tokyo):** *"Constraining Degenerate Neutrino Mass models and Implications"*

10:05 – 10:30 **Takasugi E. (Osaka):** *"Solar Neutrino Oscillations"*

10:30 COFFEE BREAK

11:00 – 11:35 **Smirnov A.Y. (Trieste):** *"Status and Consequences of Neutrino Mixing"*

11:35 – 12:05 **Valle J.W.F. (Valencia):** *"Non-oscillation Solutions of the Atmospheric and Solar Neutrino Problems"*

12:05 – 12:35 **Pakvasa S. (Hawaii):** *"Neutrino Anomalies without Oscillations"*

12:35 LUNCH

14:00 – 14:30 **Barger V. (Wisconsin):** *"Reconstruction of the Neutrino Mixing Matrix"*

14:30 – 14:55 **Fogli G. (CERN):** *"Neutrino Oscillation Analysis with Three Flavours"*

Dark Matter

14:55 – 15:25 **Arnouitt R.L. (Texas):** *"WIMPs and Supergravity Models"*

15:25 – 15:55 COFFEE BREAK

15:55 – 16:15 **Bednyakov V. (Dubna):** *"Does Collider Physics Need to Know About Direct Dark Matter Detection?"*

16:15 – 16:40 **Wesson P. (Canada):** *"Necessity of and Candidates for Dark Matter"*

16:40 – 17:05 **Shaposhnikov M. (Lausanne):** *"Superheavy Dark Matter"*

**Early Universe and Cosmology I:
Pre-big bang and Structure Formation**

17:05 – 17:35 **Battye R. (Cambridge):** *"Defect – Based Structure Formation"*

17:35 – 18:05 **Copeland E.D. (Brighton):** *"String Cosmology"*

"Compositeness"

18:05 – 18:30 **Panella O. (Perugia):** *"Compositeness in Accelerator and Non-Accelerator Experiments"*

18:30 DINNER

Wednesday, June 9

8:00 BREAKFAST

Phenomenological Implications of Superstrings and Planck Physics

9:00 – 9:30 **Faraggi A. (Florida)**: *"Present and Future Perspectives of Superstring Phenomenology"*

9:30 – 10:00 **Antoniadis I. (CERN)**: *"Superstrings, TeV Compactification and Implications"*

10:00 – 10:25 **Cvetic M. (Philadelphia)**: *"Strings and Black Holes"*

10:25 – 10:55 COFFEE BREAK

10:55 – 11:25 **Nanopoulos D.V. (Texas)**: *"M – Theory Model Building and Proton Stability"*

11:25 – 11:55 **Nilles H.P. (Bonn)**: *"SUSY breakdown in M-theory: Gaugino Masses and WIMPs, etc"*

11:55 – 12:30 **Mavromatos N. (Oxford)**: *"D – Branes and the Structure of Quantum Space Time"*

12:30 LUNCH

Fundamental Symmetries:

CP Violation, Lorenz Invariance, Equivalence Principle

14:00 – 14:30 **Herczeg P. (Los Alamos)**: *"Aspects of CP Violation"*

14:30 – 14:50 **Tanimoto M. (Ehime, Japan)**: *"Is CP Violation Observable in Long Baseline Neutrino Oscillation Experiments?"*

14:50 – 15:10 **Paes H. (MPI, Heidelberg)**: *"Violations of Equivalence Principle and Double Beta Decay"*

15:10 – 15:45 **Allen R. (Texas)**: *"Lorentz Invariance at LHC Energies"*

15:45 – 16:10 COFFEE BREAK

Early Universe and Cosmology II:

Topological Defects, Symmetry Breaking, Baryogenesis

16:10 – 16:35 **Senjanovic G. (Trieste)**: *"New Ideas about Early Universe, Topological Defects and Monopoles"*

16:35 – 17:00 **Evans N. J. (Boston U.):** *"New Developments in Dynamical Symmetry Breaking Models"*

17:00 – 17:25 **Akhmedov E. (Trieste):** *"Baryogenesis via Neutrino Oscillations etc"*

17:25 – 17:55 **Fodor Z. (Budapest):** *"Baryogenesis and Electroweak Phase Transitions"*

Short and Long base–line research

17:55 – 18:15 **Drexlin G. (Karlsruhe):** *"Developments and Perspectives in the Search of Neutrino Oscillations by LSND and KARMEN"*

18:15 – 18:35 **Tezuka I. (CHORUS, Japan):** *"New CHORUS results, perspectives of the emulsion technique for future neutrino oscillation experiments (in particular at long baseline)"*

18:35 DINNER

Evening Session I

20:00 – 20:35 **Nishikawa K. (KEK):** *"First Results of the KEK Long Base-line Experiment and the Atmospheric Neutrino Problem"*

Non–Accelerator Experiments I

20:35 – 20:55 **Weinheimer Ch. (Mainz):** *"The Neutrino Mass from Tritium Decay Experiments"*

20:55 – 21:15 **Baldo–Ceolin M. (Padova U.):** *"Neutron – Antineutron Oscillations"*

21:15 – 21:35 **Djilkibaev J. (INR, Moscow):** *"Search for Monopoles at Baikal Neutrino Observatory"*

Thursday, June 11

8:00 BREAKFAST

Search for New Physics at Colliders and Supercolliders III

9:00 – 9:30 **Kalinowski J. (Warsaw):** *"R-Parity Violating Physics at Present and Future Colliders"*

9:30 – 9:50 **Nikolaidou R. (Grenoble):** *"Reviewing the Search for R-Parity Violation at the LEP Collider"*

9:50 – 10:10 **Couyuntzelis C. (CERN):** *"Status and perspectives of LEP search for the Higgs boson"*

10:10 – 10:30 **Hebbeker T. (Berlin):** *"SUSY searches at LEP"*

10:30 – 11:00 COFFEE BREAK

Non-Accelerator Experiments II

11:00 – 11:30 **Declais Y. (CHOOZ):** *"CHOOZ Results and the Atmospheric Neutrino Problem"*

11:30 – 12:00 **Kajita T. (ICRR, Tokyo):** *"Status and Perspectives of Neutrino Physics at Superkamiokande and other Solar Neutrino Detectors"*

12:00 – 12:25 **Mauri F. (INFN, Pavia):** *"Search for Proton Decay, and the CERN – Gran Sasso Long Baseline Neutrino Experiment"*

12:30 LUNCH

14:00 – 14:30 **Molzon W.R. (California):** *"Rare Decays and Beyond Standard Model Physics"*

14:30 – 14:55 **Klapdor-Kleingrothaus H.V. (MPI, Heidelberg):** *"GENIUS – Future of Double Beta Decay, Dark Matter etc."*

14:55 – 15:25 **Montaruli T. (INFN, Bari):** *"MACRO Detector (including monopoles, indirect dark matter detection, neutrinos,...)"*

15:25 – 15:45 **Bernabei R. (INFN, Rome):** *"Dark Matter Activities"*

15:45 – 16:15 COFFEE BREAK

Search for New Physics at Colliders and Supercolliders IV

16:15 – 16:35 **Sanchez E. (CERN):** *"Rare processes at LEP2 and limits on the anomalous couplings of gauge bosons"*

16:35 – 17:55 **N.N. (HERA):** *"Search Leptoquarks and Excited Fermions at"*

HERA”

17:55 – 18:15 **N.N. (HERA):** *”Search for R-Parity Violation SUSY and Isolated Leptons at HERA”*

18:15 – 18:40 **London D. (Montreal):** *”Search for Inverse Neutrinoless Double Beta Decay and other Delta L=2 Processes at Present and Future Accelerators”*

18:35 DINNER

Evening Session II

20:00 – 20:20 **Gold M. (CDF):** *”Searches for exotic phenomena beyond the standard model at TEVATRON”*

20:20 – 20:40 **N.N. (Fermilab):** *”Search for Electroweak Physics, at TEVATRON”*

20:40 – 21:00 **Lohmann W. (Zeuten):** *”Anomalous electromagnetic and weak moments of tau leptons”*

Non-Accelerator Experiments III

21:00 – 21:20 **Baudis L. (MPI, Heidelberg):** *”Search for Dark Matter”*

21:20 – 21:45 **Suvorova O. (INR, Moscow):** *”Status and Perspectives of Indirect Search for Dark Matter”*

Friday, June 12

8:00 BREAKFAST

Early Universe and Cosmology III: Pre-big bang

9:00 – 9:35 **Riotto A. (CERN):** *"Pre-big bang Cosmology"*

9:35 – 10:00 **Prof. Lyth D. (Lancaster):** *"Models of Inflation and the Cosmological Density Perturbation"*

10:00 – 10:25 **Leibundgut B. (Garching):** *"High Redshift Supernovae – Evidence for a Cosmological Constant"*

10:25 - 10:55 COFFEE BREAK

10:55 – 11:15 **Capozziello S. (Napoli U.):** *"Nonminimal Derivative Coupling and the Recovering of Cosmological Constant"*

Gravitational Waves

11:15 – 11:45 **Hogan C.J. (Washington):** *"Gravitational Waves and Cosmology"*

11:45 – 12:10 **Vitale S. (Trento):** *"Search for Gravitational Waves"*

Supernova neutrinos

12:10 – 12:35 **Nabi J.Un (MPI, Heidelberg):** *"Supernovae"*

12:35 LUNCH

Relic Neutrinos

14:00 – 14:30 **Weiler T.J. (Vanderbilt):** *"Relic Neutrinos and Related Topics"*

High Energy Cosmic Rays

14:30 – 15:00 **Kuzmin V. (INR, Moscow):** *"Highest energy cosmic rays beyond the GKZ cutoff"*

Space Experiments: Cosmic Microwave Background

15:00 – 15:35 **Scott D. (Canada):** *"New Physics from MAP and PLANCK"*

15:35 – 16:05 COFFEE BREAK

16:05 – 16:35 **Sugiyama N. (Kyoto U.):** *"Review of CMB Theory – and the Potential of MAP and PLANCK"*

Redshift Surveys

16:35 – 17:05 **Tucker D. (Fermilab):** *"The View of the Universe from Redshift Surveys"*

Antimatter Search

17:05 – 17:35 **Wallraff W. (Aachen):** *"Search for Antimatter"*

Gamma Ray Bursts

17:35 – 18:30 **Hartmann D. (Clemton U.):** *"Gamma Ray Bursts"*

18:30 DINNER

Evening Session III

20:00 – 20:25 **Covi L. (Lancaster):** *"New Developments in Inflation Models"*

20:25 – 21:15 **Frontera F. (Bologna):** *"Gamma Ray Burst Search with BEPPPOSAX"*