

CURRICULUM VITAE

Dimitri T. BOURILKOV

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Education

- 1986 Ph.D. in Physics, Institute for Nuclear Research and Nuclear Energy, Sofia, Bulgaria
“Production of Charmed Baryons Λ_c^+ in the Neutron Beam of the Serpukhov Accelerator”, Ph.D. Thesis, 1986
- 1983 CERN-JINR School of Physics, Tabor, Czechoslovakia
- 1981 CERN-JINR School of Physics, Hanko, Finland
- 1978 JINR School of High Energy Physics, Primorsko, Bulgaria
- 1978 M.S. in Nuclear Physics, Magna Cum Laude (149/150), Sofia University, Sofia
“Geometrical and Kinematical Reconstruction of Events in Multiwire Chamber Experiments”, Diploma Thesis, 1978
- 1977 International School of Theoretical Physics, Primorsko, Bulgaria
- 1973 Maturity Certificate, Cum Laude (50/50), German High School, Sofia

Employment

- 2001-now Scientist at the University of Florida, Gainesville, USA
- 1993-2001 Research Scientist at the Institute for Particle Physics, ETH Zurich, Switzerland
(stationed at CERN, Geneva)
- 1991-93 Scientific Researcher in the High Energy Group, Catholic University of Nijmegen,
the Netherlands
- 1988-89 Visiting Scientist, Institute for High Energy Physics, ETH Zurich, Switzerland
- 1979-81 Research Associate at the Joint Institute for Nuclear Research, Dubna, Russia
- 1978-91 High Energy and Cosmic Rays Group, Institute for Nuclear Research and Nuclear
Energy, Sofia, Bulgaria; as Physicist (78-82), Research Associate III grade (82-86)
and Research Associate I grade (86-91)

Scientific Research

Cutting edge Grid research

Responsibilities:

- Initiator of the CAVES project - Collaborative Analysis Versioning Environment System.
- Member of the GriPhyN project.

Main research topics:

- Initiated the exploration of virtual data concepts for data analysis. Reported the initial ideas at the CHEP03 conference. Demonstrated the first working prototype at Supercomputing 2003. Wrote the white paper of the CAVES project and reported it at the ROOT2004 workshop.
- Integrated grid middleware in the CMS toolbox for large scale distributed Monte Carlo productions.

Experiment CMS at CERN - LHC physics (since 1994)Responsibilities:

- Leading preparations for CMS data analysis and physics studies at the Tier2 center at the University of Florida.
- Developing software for the CMS generator group. Responsible for the Parton Density Functions. Wrote visualization software.
- Manager of the CMS Monte Carlo production at the University of Florida.

Main research topics:

- The preparations for data analysis at the University of Florida are in full swing. In parallel with building an analysis and production cluster of computers and servers, organized the analysis of data from the data challenges of the CMS collaboration at the Tier2 center. Initiated the exploration of virtual data concepts for data analysis. Preparing grid and web services enabled analyses in collaboration with Caltech (the GAE project) and CERN (the ARDA project).
- Organized and completed successfully the CMS Monte Carlo production at the University of Florida in 2001–2: around 8300 gigabytes of produced data, which are used by the trigger and physics groups in CMS. This production established the protot-Tier2 center at the University of Florida as an important contributor to CMS data analysis. Wrote the Florida part of a CMS note summarizing the spring 2002 Data Acquisition Technical Design Report production. The results were used in the DAQ TDR, published at CERN.
- Coauthor of the CMS Technical Proposal.

Phenomenological analyses for future colliders (since 1999)Collaborator / author:

- HERA-LHC Workshop
- LHC / LC Study Group
- LHC Standard Model Workshop

Main research topics:

- Performed two studies for the workshop devoted to the interplay between LHC and linear collider physics, wrote-up the results as e-prints:
 1. Sensitivity to contact interactions and extra dimensions in dilepton and diphoton channels at the LHC and at a e^+e^- linear collider.
 2. Parton Density Function (PDF) uncertainties on the predictions of different observables in Higgs or Drell-Yan production at the LHC. This analysis is performed by developing an interface from the the very popular Monte Carlo generator PYTHIA to the modern PDF library LHAPDF.

This work is being prepared for publication as CERN Yellow book.

- The study of PDF uncertainties is extended and refined for the HERA-LHC workshop which started in 2004. The interface is extended to include the Monte Carlo generator HERWIG and will become part of the official LHAPDF library in the next release.
- Performed a phenomenological study of the production of Drell-Yan lepton pairs in the Z mass range and for the highest possible energies. The aim is to conduct precision tests of the Standard Model at the highest momentum transfers and luminosities achievable at LHC and to search for new physics at the TeV scale. Wrote the Drell-Yan section for the Electroweak physics chapter of the LHC Standard Model workshop, published as CERN Yellow book.

Experiment L3 at CERN - LEP physics (since 1988)Responsibilities:

- Coordinator of the Fermion-pair production group in L3.
- In charge of the calibration and alignment of the central tracker.
- Member of the LEP Electroweak Working Group. Performed combination of data on fermion-pair production and fits to extensions of the Standard Model and contributed to the publications of the group from 1999 to 2004.
- Contact from L3 in the two-fermion group of the LEP2 Monte Carlo workshop. Contributed to and wrote parts of the workshop report published as CERN Yellow book.

Main research topics:

- Contributed to the construction of the central tracking detector (a high precision Time Expansion Chamber - TEC) during the critical months which were decisive for the fate of the project. Collaborated with the ETH group on the wiring of the chamber and the insulation of the high voltage feed-throughs.
- Developed reconstruction and simulation software for tracking, implemented in the L3 pattern recognition program.
- Performed a study of the reaction $e^+e^- \rightarrow e^+e^-(\gamma)$ around the Z pole. Developed an original method to recognize the charge of the electron and the positron in the short tracking environment of L3. This was the basis not only of all subsequent measurements of the total and differential cross sections and the forward-backward asymmetry of Bhabha scattering, but also a key ingredient for the TEC calibration using e^+e^- pairs. Participated in the precise determination of basic electroweak parameters. Contributed to publishing these results in *Zeitschrift für Physik C*.
- From 1994 to 2000 was in charge of the calibration and alignment of the central tracker of L3. Developed a new method for TEC calibration based on the high precision spatial information from the silicon vertex detector. Wrote the program TANGRA, used for calibration since 1994. Extended the calibration sample to include not only muon pairs in the barrel, but also electron pairs in the barrel and endcap. This was decisive for calibration in the LEP2 era and for getting high central tracker resolution, needed for tests of the Standard Model at very high energies and for new physics searches, one example being the Higgs hunt.
- Initiated the study of Bhabha scattering at energies between 130 and 209 GeV (total and differential cross section). Performed the first measurement of Bhabha scattering above the Z pole and showed that the Standard Model is valid in this new and previously unexplored energy domain. From 1998 is one of the two coordinators of the fermion-pair group of L3 and guided the publications of the measurements in *Physics Letters B*.
- Initiated the first search at LEP for R-parity breaking exchange of supersymmetric neutrinos in leptonic reactions at LEP2 and LEP1. Computed the sizable radiative corrections due to initial state radiation. Wrote a paper for *Physics Letters B*.
- Performed with two colleagues searches for contact interactions and new phenomena beyond the Standard Model (compositeness, leptoquarks, supersymmetric quarks). Wrote two articles for *Physics Letters B*.
- Consulted a student on the measurement of the running of the fine structure constant using Bhabha scattering. This measurement requires detailed understanding of the track efficiency in the forward region. Published in *Physics Letters B*.

- Worked on search in L3 for effects of low scale gravity models with extra spatial dimensions. Pioneered the analysis of the Bhabha channel and showed that it is the most sensitive discovery field at LEP2 energies. Contributed to two articles in Physics Letters B. Pioneered combined analyses of Bhabha scattering measurements from the four LEP experiments and derived limits on low scale gravity, string models and compositeness. Wrote three papers as sole author for Journal of High Energy Physics and Physical Review D.
- Performed a searchy for doubly-charged Higgs bosons at LEP and put limits on their masses and couplings. Wrote the corresponding part of the L3 publication in Physics Letters B.

Cosmic ray physics (since 1990)

Developed and implemented with two cosmic ray physicists an original program (called ARROW), using fits and extrapolations of accelerator data to model the hadron interactions at ultra high energies, GHEISHA at energies below 30 GeV and GEANT for tracking. This program extends the accessible energy range for simulation of the hadron and electromagnetic components of extensive air showers (EAS), initiated by cosmic rays with primary energy from 1 TeV to 100 PeV, down to very low thresholds below 100 MeV. Performed calculations of the basic characteristics of EAS, including the low energy neutron flux, and wrote an article for Journal of Physics G.

Joined the L3+C collaboration which is studying cosmic muons, taking advantage of the unique features of the L3 detector. Extended the ARROW program for calculations of the muon and neutrino components of air showers as observed at shallow depth underground. Reported the results at international conferences.

Precise determination of the interaction point position in the LEP collider (1995-96)

Worked with representatives from the four LEP collaborations and the accelerator division on the development of two independent and complementary methods to determine the beam position: using beam orbit monitor data from the accelerator or central tracker data. This study was published in Nuclear Instruments and Methods and is a vital ingredient for tagging of b quarks and the Higgs hunt at LEP2.

Experiment BIS-2 at Serpukhov (1977-1988)

Study of the production and decay properties of charmed and strange particles by means of a magnetic spectrometer, located in the wide band neutron beam.

Research topics:

- Developed the algorithm, designed, wrote the code and deployed in the collaboration the pattern recognition program PERUN. This was a very successful track reconstruction program and basic software tool in the experiment. Included in the work awarded with First Prize for Scientific-technical Research of JINR, Dubna, Russia, in 1982.
- Participated in the development of multiwire proportional chambers. Determined the hit efficiency and helped to optimize the gas mixture.
- Wrote the original program MC-BIS2 and performed extensive Monte Carlo simulations for the determination of the spectrometer acceptance.
- Worked on the observation of charmed baryons Λ_c^+ in neutron-nucleus interactions. This work was awarded with the First Prize for Experimental Nuclear Physics of INRNE, Sofia, in 1982.
- Initiated and performed the study of the double-differential cross section and the production dynamics of Λ_c^+ . Developed a method for model-independent extraction of the two-dimensional momentum distribution from a contaminated sample. Measured with high precision the mass of Λ_c^+ . Wrote two articles for Bulgarian Journal of Physics. This work was a key part of the most successful BIS-2 publication in Zeitschrift für Physik.

- Wrote a thesis based on the results from the charmed baryon study and the pattern recognition program.
- Initiated and performed with two colleagues a measurement of the polarization of the Λ^0 hyperon, published in Soviet Journal of Nuclear Physics.
- Supervised and performed with a student a study of the Ξ^- polarization.
- Studied with a colleague the total and differential cross sections for the hadroproduction of baryons with strangeness from -3 to +2 (from Ω^- to Ξ^+) and contributed to an article in Soviet Journal of Nuclear Physics.
- Initiated and performed a study of nuclear effects in the production of strange particles and wrote an article in Bulgarian Journal of Physics.

Phenomenological analysis of high mass muon-pair production (1984-1985)

Performed with an experimentalist and a theoretician a simultaneous fit to the data on Drell-Yan muon-pair production from the NA3 (proton-platinum interactions) and NA10 (pion-tungsten interactions) experiments. Developed a method for reducing the correlations in the process of solving this non-linear inverse problem. Determined the main structure function parameters of the pion and the nucleon. Observed a strong dependence of the QCD K-factor on the momentum distribution of gluons in hadrons.

Honors

- 1978 M.S. in Physics, Magna Cum Laude
- 1982 First Prize for Scientific-technical Research of JINR, Dubna, Russia, for the development of the BIS-2 spectrometer
- 1982 First Prize for Experimental Nuclear Physics of INRNE, Sofia, for the Λ_c^+ study
- 2000 Biography included in the 2001 Edition of "Who's Who in the World"

Students

- 1983 I.G.Yovchev, M.S. in Physics, "Inclusive Spectra of Charmed Baryons Λ_c^+ ", Diploma Thesis, Sofia, 1983.
- 1985 Z.Baatar, M.S. in Physics, "Measurement of the Polarization of Ξ^- ", Diploma Thesis, Sofia, 1985.

Administrative experience

Contributed to writing proposals and obtaining funding for high energy physics experiments from the Bulgarian Science Foundation.

Participated in a survey of high energy physics in Bulgaria and wrote part of the first proposal for the successful Bulgarian application to become a member state of CERN.

Society Membership

- European Physical Society
- American Physical Society

Computer Skills

Languages: JAVA, C++, FORTRAN, HTML, XML, SQL, PYTHON, PHP, scripting languages

Operating systems: UNIX/LINUX, Windows, VMS, VM

Platforms: AIX/HP/SGI/SUN workstations, PC, IBM/CDC/NORD/DEC mainframes

Software: Pattern recognition. Analysis of large and complex data sets. Statistics. Data mining. Large scale Monte Carlo simulations. Software development in JAVA, C++, PYTHON, PHP and FORTRAN.

Foreign Languages

English, French, German, Russian, some Dutch

Talks at International Conferences (<http://cern.ch/bourilkov/talks.html>)

“Measurement of the τ Lepton Lifetime with the L3 Detector”, Meeting of the Division of Particles and Fields of the APS, Minneapolis, USA, 1996.

“Fermion-pair Production above the Z and Search for New Phenomena”, Invited LEP review talk, XXXIII Rencontres de Moriond, Les Arcs, France, 1998.

“Measurement of Hadron and Lepton-pair Production above the Z Resonance”, American Physical Society Centennial Meeting, Atlanta, USA, 1999.

“Simulation of Multi-muon Events from EAS at Shallow Depths Underground”, First Arctic Workshop on Cosmic Ray Muons, Sodankylä, Finland, 1999.

“Search for Extra Dimensions in e^+e^- Interactions at LEP”, From the Planck Scale to the Electroweak Scale, EuroConference, Castelvechio Pascoli, Italy, 2000.

“Two-fermion and Two-photon Final States at LEP2 and Search for Extra Dimensions”, Invited LEP review talk, Les Rencontres de Physique de la Vallée d’Aoste, La Thuile, Aosta Valley, Italy, 2001.

“Combination of the LEP II $f\bar{f}$ and $\gamma\gamma$ Results and Searches for New Phenomena”, LEP Electroweak Working Group talk, Meeting of the Division of Particles and Fields of the APS, Williamsburg, USA, 2002.

“Limits on Physics Beyond the Standard Model from the Combined LEP II $f\bar{f}$ and $\gamma\gamma$ Measurements”, LEP Electroweak Working Group talk, Meeting of the Division of Particles and Fields of the APS, Philadelphia, USA, 2003.

“Virtual Data in CMS Analysis”, Computing in High Energy and Nuclear Physics, CHEP03, La Jolla, USA, 2003.

“Constraints on the Scale of New Physics Phenomena from the Combined LEP II Fermion-pair and Gamma Gamma Measurements”, Meeting of the American Physical Society, Denver, USA, 2004.

Recent Seminars and Workshops (<http://cern.ch/bourilkov/talks.html>)

“Measurement of Fermion-Pair Production and Search for New Phenomena at LEP2 with the L3 Detector”, Seminar at Bonn University, November 6, 1997

- “Lepton-pair Production at LHC and Precise Determination of the Electroweak Mixing Angle”, Talk at the LHC Standard Model Workshop, CERN, January 22, 1999
- “Study of Multi-muon Events from EAS with the L3 Detector at Shallow Depth Underground”, Poster at the 6th International Workshop on Topics in Astroparticle and Underground Physics, TAUP99, Paris, 1999.
- “ $e^+e^-(\gamma)$ at 183 and 189 GeV: Data versus BHWIDE”, Talk at the Plenary Meeting of the LEP2 Monte Carlo Workshop, CERN, October 12, 1999.
- “Drell-Yan Production of Lepton Pairs at LHC”, Talk at the Plenary Meeting of the LHC Standard Model Workshop, CERN, October 14, 1999.
- “Plans for Studies in Fermion-pair Production: Electroweak Precision Measurements, Extra Dimensions, Compositeness, Z’”, LHC / LC Study Group Meeting, CERN, Geneva, July 5, 2002.
- “Update on Fermion-pair Production Processes”, LHC / LC Study Group Meeting, CERN, Geneva, February 25, 2003.
- “Sensitivity to Contact Interactions and Extra Dimensions in Di-lepton and Di-photon Channels at Future Colliders”; “Study of Parton Density Function Uncertainties with LHAPDF and PYTHIA at LHC”, LHC / LC Study Group Meeting, CERN, Geneva, May 9, 2003.
- “The CAVES Project - Collaborative Analysis Versioning Environment System”, ROOT 2004 Users Workshop, SLAC, Stanford, USA, February 27, 2004.
- “Interface for Using LHAPDF in PYTHIA and HERWIG”, HERA-LHC Workshop Kick-off Meeting, CERN, Geneva, March 27, 2004.

List of selected publications (<http://cern.ch/bourilkov/dbpubs/dbpubs.html>)

1 Publications in Refereed Journals

1.1 Miscellanea

- [1] D.Bourilkov, S.Petrov and H.Vankov “Low-Energy Threshold Calculations of Extensive Air Showers with Primary Energy $10^{13} - 10^{15}$ eV”, Journal of Physics G, **17**(1991)1925.
- [2] D.Bourilkov, V.Brigljevic, F.Filthaut, R.Forty, F.Harris, R.Hawkings, G. von Holtey, E.Migliore, O.Scheider, E.Valazza, J.Wenninger “Beam Spot Position Measurement at the LEP Collider”, Nuclear Instruments and Methods A, **394**(1997)103.
- [3] D. Bourilkov “Analysis of Bhabha Scattering at LEP2 and Limits on Low Scale Gravity Models”, J. High Energy Phys. **08** (1999)006; hep-ph/9907380.
- [4] D. Bourilkov “Search for TeV Strings and New Phenomena in Bhabha Scattering at CERN LEP2”, Physical Review D. **62** (2000) 076005; hep-ph/0002172.
- [5] D. Bourilkov “Hint for Axial-vector Contact Interactions in the Data on $e^+e^- \rightarrow e^+e^-(\gamma)$ at Centre-of-mass Energies 192–208 GeV”, Physical Review D. **64** (2001) 071701; hep-ph/0104165.
- [6] O. Adriani et al. “The L3+C Detector, a Unique Tool-set to Study Cosmic Rays”, Nuclear Instruments and Methods A, **488**(2002)209.

1.2 With the BIS-2/EXCHARM Collaboration (alias D.Burilkov)

- [1] A.Aleev et al. “Evidence for Charmed Baryons Λ_c^+ , Produced in the Neutron Beam of the Serpukhov Accelerator”, *Yadernaya Fizika (Soviet Journal of Nuclear Physics)*, **35**(1982)1175.
- [2] A.Aleev et al. “Polarization of Λ^0 Produced by Neutrons with an Average Energy 40 GeV on Carbon Nuclei”, *Yadernaya Fizika*, **37**(1983)1479.
- [3] D.Burilkov et al. “Inclusive Production of Charmed Baryons Λ_c^+ in nCH-interactions near 55 GeV”, *Bulgarian Journal of Physics*, **10**(1983)49.
- [4] D.Burilkov et al. “Momentum Distributions of Λ_c^+ Produced in the Neutron Beam of the Serpukhov Accelerator”, *Bulgarian Journal of Physics*, **10**(1983)185.
- [5] A.Aleev et al. “The Λ_c^+ Production by 40-70 GeV Neutrons on Carbon”, *Zeitschrift für Physik C*, **23**(1984)333.
- [6] A.Aleev et al. “Hyperon Production in nC-interactions in a Neutron Beam with 40 GeV/c Momentum”, *Yadernaya Fizika*, **44**(1986)661.

1.3 With the L3 Collaboration

- [1] B.Adeva et al. “A Determination of the Properties of the Neutral Intermediate Vector Boson Z^0 ”, *Physics Letters B*, **231**(1989)509.
- [2] M.Acciarri et al. “Measurement of Cross Sections and Leptonic Forward-Backward Asymmetries at the Z Pole and Determination of Electroweak Parameters”, *Zeitschrift für Physik C*, **62**(1994)551.
- [3] M.Acciarri et al. “Measurement of Hadron and Lepton-Pair Production at $130 \text{ GeV} < \sqrt{s} < 140 \text{ GeV}$ at LEP” *Physics Letters B*, **370**(1996)195.
- [4] M.Acciarri et al. “Measurement of Hadron and Lepton-Pair Production at $161 \text{ GeV} < \sqrt{s} < 172 \text{ GeV}$ at LEP”, *Physics Letters B*, **407**(1997)361.
- [5] M.Acciarri et al. “Search for R-Parity Breaking Sneutrino Exchange at LEP”, *Physics Letters B*, **414**(1997)373.
- [6] M.Acciarri et al. “Search for New Physics Phenomena in Fermion-Pair Production at LEP”, *Physics Letters B*, **433**(1998)163.
- [7] M.Acciarri et al. “Search for Low Scale Gravity Effects in e^+e^- Collisions at LEP”, *Physics Letters B*, **464**(1999)135.
- [8] M.Acciarri et al. “Search for Extra Dimensions in Boson and Fermion Pair Production in e^+e^- Interactions at LEP”, *Physics Letters B*, **470**(1999)281.
- [9] M.Acciarri et al. “Measurement of Hadron and Lepton-Pair Production at $130 \text{ GeV} < \sqrt{s} < 189 \text{ GeV}$ at LEP”, *Physics Letters B*, **479**(2000)101.
- [10] M.Acciarri et al. “Measurement of the Running of the Fine-Structure Constant”, *Physics Letters B*, **476**(2000)40.
- [11] M.Acciarri et al. “Search for Manifestations of New Physics in Fermion-Pair Production at LEP”, *Physics Letters B*, **489**(2000)81.
- [12] P. Achard et al. “Search for Doubly-Charged Higgs Bosons at LEP”
Physics Letters B, **576**(2003)18.

1.4 L3 Detector

- [1] L3 TEC Collaboration, F.Beissel et al. “Construction and Performance of the L3 Central Tracking Detector”, Nuclear Instruments and Methods A, **332**(1993)33.
- [2] H. Anderhub et al. “Experience with the L3 Vertex Drift Chamber at LEP”, Nuclear Instruments and Methods A, **515**(2003)31.

2 Publications in Books

- [1] D.Bourilkov, P.Markov, M.Likhachev “Inclusive Spectrum of Charmed Baryons Λ_c^+ Produced at Serpukhov Energies”, University Annual Techn. Phys., Sofia, Tome 22, Book 2(1985)57.
- [2] D.Bourilkov, I.Yovchev, M.Likhachev, P.Markov “Extraction of Momentum Distributions from Contaminated Samples”, “Theoretical and High Energy Physics”, Bulgarian Academy of Sciences, Sofia, 1988, p.231. [In Bulgarian]
- [3] A.Ball et al. “Interaction Regions”, “Physics at LEP2”, Yellow book CERN 96-01, 1996, Vol.1, p.45.
- [4] G.Azuelos, U.Baur, J. van der Bij, D.Bourilkov et al. “Electroweak Physics”, “Standard Model Physics (and more) at the LHC”, CERN-YR-2000-004; hep-ph/0003275.
- [5] M.Kobel et al. (LEP2 Two-fermion Working Group), “Two-fermion Production in Electron-positron Collisions”, “Reports of the Working Groups on Precision Calculations for LEP2 Physics”, CERN-YR-2000-009; hep-ph/0007180.

3 Conference Proceedings

- [1] D.Bourilkov “Measurement of the Tau Lepton Lifetime with the L3 Detector”, Talk presented at the Meeting of the Division of Particles and Fields of the APS, Minneapolis, USA, 1996; published in the proceedings edited by K.Heller, J.K.Nelson and D.Reeder, World Scientific, Singapore, 1998, volume II, page 1264.
- [2] D.Bourilkov “Fermion-pair Production above the Z and Search for New Phenomena”, Invited LEP review talk, XXXIII Rencontres de Moriond, Les Arcs, France, 1998; published in the proceedings ed. by J. Trần Thanh Vân, Edition Frontiers, Paris, 1999, page 139; hep-ex/9806027.
- [3] D.Bourilkov “Simulation of Multi-muon Events from EAS at Shallow Depths Underground”, Invited talk presented at the First Arctic Workshop on Cosmic Ray Muons, Sodankylä, Finland, April 24-29, 1999; Preprint ETHZ-IPP PR-99-04, Zurich, 1999; astro-ph/9907078.
- [4] D.Bourilkov “Study of Multi-muon Events from EAS with the L3 Detector at Shallow Depth Underground”, Presented at the TAUP99 Workshop, Paris, 1999; Nuclear Physics B (Proc. Suppl.) 87(2000)521; astro-ph/0002326.
- [5] D.Bourilkov “Two-fermion and Two-photon Final States at LEP2 and Search for Extra Dimensions”, Invited LEP review talk, Les Rencontres de Physique de la Vallée d’Aoste, La Thuile, Aosta Valley, Italy, 2001; published in the proceedings ed. by M. Greco, Frascati Physics Series, Volume XXII, INFN, 2001, page 455; hep-ex/0103039.
- [6] D.Bourilkov “Virtual Data in CMS Analysis”, Talk presented at Computing in High Energy and Nuclear Physics, CHEP03, La Jolla, USA, March 2003; published in eConf C0303241:TUAT010, 2003; e-Print Archive: physics/0306008.

4 With the CMS Collaboration

- [1] CMS Collaboration, G.Bayatian et al. “The Compact Muon Solenoid - Technical Proposal”, CERN/LHCC 94-38, LHCC/P1, CERN, 1994.
- [2] CMS Collaboration “The Trigger and Data Acquisition Project, Volume II. Data Acquisition & High-Level Trigger”, CERN/LHCC 2002-26, CMS TDR 6.2, CERN, 15 December 2002.

5 Grid Related Publications

- [1] D.Bourilkov “The CAVES Project: Exploring Virtual Data Concepts for Data Analysis”, e-Print Archive: physics/0401007; White Paper for the project, 2004.
- [2] A. Arbree, P. Avery, D. Bourilkov, R. Cavanaugh, J. Rodriguez, G. Graham, M. Wilde Y. Zhao “Virtual Data in CMS Analysis”, FERMILAB-CONF-03-275, GRIPHYN-REPORT-2003-16, CMS-CR-2003-015; Published in eConf C0303241:TUAT010, 2003; e-Print Archive: physics/0306008.
- [3] A. Arbree, P. Avery, D. Bourilkov, R. Cavanaugh, G. Graham, S. Katageri, J. Rodriguez, J. Voeckler, M. Wilde “Virtual Data in CMS Production”, Published in eConf C0303241:TUAT011, 2003; e-Print Archive: cs.dc/0306009.
- [4] G. Graham et al. “The CMS Integration Grid Testbed”, Published in eConf C0303241:MOCT010B, 2003; e-Print Archive: cs.dc/0305066.

6 Recent e-Print Archives

- [1] D.Bourilkov “Study of Parton Density Function Uncertainties with LHAPDF and PYTHIA at LHC”, Contribution to LHC / LC Study Group Working Document. Prepared for LHC / LC Study Group Meeting, Geneva, Switzerland, 9 May 2003. e-Print Archive: hep-ph/0305126.
- [2] D.Bourilkov “Sensitivity to Contact Interactions and Extra Dimensions in Dilepton and Diphoton Channels at Future Colliders”, Contribution to LHC / LC Study Group Working Document. Prepared for LHC / LC Study Group Meeting, Geneva, Switzerland, 5 Jul 2002. e-Print Archive: hep-ph/0305125
- [3] The LEP Collaborations, ALEPH, DELPHI, L3, OPAL, the LEP Electroweak Working Group and the SLD Heavy Flavour and Electroweak Groups “A Combination of Preliminary Electroweak Measurements and Constraints on the Standard Model”, preprint CERN-EP/2003-091, December 2003; e-Print Archive: hep-ex/0312023.
- [4] The LEP Collaborations, ALEPH, DELPHI, L3, OPAL, the LEP Electroweak Working Group and the SLD Heavy Flavour and Electroweak Groups “A Combination of Preliminary Electroweak Measurements and Constraints on the Standard Model”, preprint CERN-EP/2002-091, December 2002; e-Print Archive: hep-ex/0212036.
- [5] The LEP Collaborations, ALEPH, DELPHI, L3, OPAL, the LEP Electroweak Working Group and the SLD Heavy Flavour and Electroweak Groups “A Combination of Preliminary Electroweak Measurements and Constraints on the Standard Model”, preprint CERN-EP/2001-098, December 2001; e-Print Archive: hep-ex/0112021.

7 Communications and Proposals at Major International Laboratories

- [1] A.Aleev et al. (BIS-2 Collaboration) “Search for Narrow Baryon Resonances, Produced by High Energy Neutrons in Diffractive Processes”, Experimental Proposal CM1-2813, JINR, Dubna, 1980. [In Russian]
- [2] D.Bourilkov, M.Likhachev, P.Markov, P.Todorov, R.Trayanov “Program PERUN for Geometrical Reconstruction of Events in Experiments Searching for New Particles on BIS-2 Set-up”, Communication JINR, 10-80-656, Dubna, 1980. [In Russian]
- [3] B.Betev, D.Bourilkov, St.Mavrodiev “Structure Functions of Pion and Nucleon Determined from High Mass Muon Pair Production”, Communication JINR, E2-85-312, Dubna, 1985.
- [4] A.Aleev et al. (BIS-2 Collaboration) “Polarization of Ξ^- Produced Inclusively by Neutrons”, JINR Rapid Communications N19-86, p.6, Dubna, 1986.
- [5] N.Bogdanova, D.Bourilkov “Robust Estimation of Track Parameters in Wire Chambers”, Communication JINR, E10-88-277, Dubna, 1988.