

CONTENTS

Preface	vii
Advanced Detectors and Particle Identification	1
GEM detectors activity at the Laboratori Nazionali di Frascati of INFN	3
Current Results on the Development of a Carbon Nanotube Radiation detector	8
Monolithic Sensors in Deep Submicron CMOS Technology for Low Material Budget, High Rate HEP Applications	18
First Results from the development of a new generation of Hybrid Photon Detector: EBCMOS	23
The MEMS Project	28
Quality Assurance of Pixel Hybrid Photon Detectors for the LHCb Ring Imaging Cherenkov Counters	40
Fast photon-detection for COMPASS RICH-1	45
Implementation of High-Resolution Time-to-Digital Converters on two different FPGA devices	50
Performance of the High Momentum Particle Identification Detector in ALICE at LHC	55
Hydrogenated Amorphous Silicon deposited on the Asihstest Circuit for Radiation Detection	60
^{210}Pb Bremsstrahlung Emission Spectrum from Lead	65
Commercial Window Glass tested as Possible High Dose Dosimeter. Electron and Gamma Irradiation	70
Ceramic -Matrix Composite for Extreme Applications	75
The CMS Muon System and its Performance in the CMS Cosmic Challenge	80
Quantum Efficiency of Hybrid Photon Detectors for the LHCb RICH	85
Timing performance of a Vacuum Phototriode	90
Application of the Channeling Radiation for Particle Identification	95
Instrumentation of the FAST Detector	100
First Results of Silicon Photomultiplier Study performed at the University "La Sapienza" of Rome	105
Study on Nanostrip Gas Counter for the Operation under Intense Beam	110
Excitation functions and Yields for Re-186g Production by Proton Cyclotron	115
The Status of the LHCb RICH System	120

Latest results from a mass-production sample of MRPCs for the ALICE TOF detector	125
Fast Timed Active Shield for a Gamma-Ray Spectrometer	130
Test results of the ALICE-HMPID detector commissioning	136
Astroparticle and Underground Experiments	141
Nuclear Emulsion Scanning in OPERA: Methods and Results	143
CHERCAM: a Cherenkov imager for the CREAM experiment	148
Gravitational waves from the R^{21} high order theory of gravity	154
The Double Chooz Experiment	165
Technical Solutions for the MAGIC Telescope	170
Challenging the Neutrino Mass with CUORE	175
A Modular DAQ System for Next Generation Bolometric ν Mass Experiments	184
Novel Techniques for Atmospheric Monitoring for EAS Detectors using High Resolution Spectroscopy	189
A Fluorescence/Air Cherenkov Telescope Prototype in Greece: Possibility to detect Escaping Taus from Helmos Mountain in Greece.	194
Search for Massive Rare Particles with the SLIM Experiment	199
PMT Characterization for MAGIC II Telescope	204
Determining the Neutrino Mass with a Calorimetric Low-Temperature Detector - The Experiment MARE	209
The Borexino Detector: Construction and Performances	214
Design of a Wide Spectral Range and High-Resolution Spectrograph for Monitoring the Night Sky Background for Use in Air Fluorescence Telescopes	224
The Auger Experiment Status and Results	229
Preliminary Results on Neutron Background induced by Muons in a Shallow Underground Laboratory: Baradello Underground Laboratory in Como	239
Acoustic Detectors in Submarine Large Scale Detectors	244
Search of Point-like Sources with the ANTARES Neutrino Telescope	249
A tritium activity monitor for the KATRIN Experiment	254
Optical Module for Deep-sea Neutrino Telescopes	258
Radio detection of Cosmic Rays at the Pierre Auger Observatory	267
The Monitor online system of the OPERA muon magnetic spectrometer	272
Results from the NEMO 3 Experiment	277
Search for Solar Axions with the CAST-Experiment	282
Data Acquisition System for the Tunka-133 Array	287
Status report on the ANTARES project	292

Calorimetry	297
Calorimetry at the LHC	299
An Offline Quality Calorimetric Selection for the CDF Trigger . . .	306
Data Preparation of the Calorimeter Based Algorithms of the High-Level Trigger for the ATLAS experiment at the LHC	311
Study with Cosmic and Test-beam Particles of Scintillation-tile Detectors Read Out via Silicon Photomultiplier Devices	316
Measurement of the Detection Efficiency of the KLOE Calorimeter for Neutrons between 20 and 174 MeV	321
The CMS-HF Forward Calorimeter Commissioning	326
Update on the Hadron Calorimeter of the CMS Experiment at CERN	331
Status and Performance of the ALICE/PHOS Electromagnetic Calorimeter	336
Performance of the ATLAS Liquid Argon Forward Calorimeter in Beam Tests	341
The Measurement of Spectral Characteristics and Composition of Radiation in ATLAS with MediPix2-USB Devices	346
Performance of the CMS Electromagnetic Calorimeter	354
Assessment of the Čerenkov light produced in a PbWO_4 crystal by means of the study of the time structure of the signal	359
LUCID, the Luminosity Monitor for ATLAS — A Status Report . .	364
CMS ECAL intercalibration with cosmic rays and 2006 test beam electrons	371
Study and Development of the Multi-Pixel Photon Counter for the GLD Calorimeter Readout	376
The CALICE Tile Hadron Calorimeter Prototype with SiPM Readout: Design, Construction and First Test Beam Results	381
Inter-calibration of the CMS Barrel Electromagnetic Calorimeter Using $\pi^0 \rightarrow \gamma\gamma$ Decays	386
High Energy Physics Experiments	391
Quality assurance procedures for the construction of ALICE TOF SuperModules	393
Accelerator Neutrino Physics and Low Energy Tests of The Standard Model with High Intensity Neutrino Beams	398
The Muon Ionisation Cooling Experiment - MICE	403
Luminosity measurement using Cherenkov Integrating Detector (LUCID) in ATLAS	413
The CMS Magnet Commissioning and the Development of an Improved CMS Conductor Suitable for Future Proposals	418
Commissioning the CMS experiment	424
The Status of the ATLAS Simulation Project for the LHC Startup .	436
CMS Data and Workflow Management System	441

The Large-angle Photon Veto Detector for the P326 Experiment at CERN	446
The CDF RUN II Silicon Detector: Aging Studies	451
Implementation and performance of the ATLAS Trigger Muon "Vertical Slice"	456
Test of Real-time Identification of Sparse Data Patterns in Silicon Pixel Detectors	461
Commissioning of the ATLAS Inner Detector with cosmic rays	466
Energy Loss and Damage Production by Heavy Ions and Strange Quark Matter in Silicon	471
Implementation and Performance of the High-Level Trigger electron and photon selection for the ATLAS experiment at the LHC	476
The CMS ECAL Laser Monitoring System	481
High Accelerating Field Superconducting Radio Frequency Cavities	486
Overview of the Plenary Sessions on Accelerator and Computer/Networking Developments	496
The CMS Electromagnetic Calorimeter	501
The Magnetic Distortion Measurement System of the LHCb RICH 2 Detector	506
Aspects of the SiD Detector Design for the International Linear Collider	511
Resistive Plate Chamber performance during the CMS Magnet Test Cosmic Challenge	521
Implementation and performance of the tau trigger in the ATLAS experiment	526
Radiation Damage	531
Characterisation of FBG Sensors under Ionizing Radiation for High Energy Physics and Space Physics	533
Radiation effects on platinum nanostructured electrocatalysts for polymer electrolyte fuel cells	540
Determination of the Hall Coefficient for Neutron Irradiated Samples down to Cryogenic Temperatures and its Dependence on Resistivity at Room Temperature.	547
Thin-film Optical Materials under High Dose γ Irradiation	554
Study of the Radiation Hardness of VCSEL and PIN Arrays	559
Radiation Hard Sensors for the BeamCal of the ILC	564
Gamma-ray Irradiation Effects on Luminescent Glasses for White LED Applications	570
On line monitoring of radiation damage and recovery in quartz fibers using reflected light	575
Studies of Lead Tungstate Crystals exposed to Large Proton and Pion Fluences	580

Measurements of Noise and Static Parameters of CMOS Devices after 3 MeV Proton Irradiation up to 120 Mrad	586
Study of Lithium Diffusion into Silicon-Germanium Crystals	591
Radiation Hardness Studies in a CCD with High-speed Column Parallel Readout	598
Radiotherapy and Medical Instrumentations	603
Fricke Gel Dosimeter Tissue-Equivalence: a Monte Carlo Study . . .	605
Optimised Operation of the MIMOSA5 Pixel Sensor for Biological Sample Imaging	610
Silicon Photo Multipliers Characterization: Recent Achievements and Latest Results. Investigation of SiPM for Photon Counting Applications	616
Ignored Discovery now proven Capable of Saving Millions of Lives from Premature Cancer Death demands rethinking the Direction of Research	624
Real-time X-ray μ -imaging of Living Organisms	640
The Axial 3-D Pet Concept implemented by Wave Length Shifter Strip Hodoscopes	645
Application of Pixel Detectors in Structural Biology	650
Ultra-fast Timing and the Application of High Energy Physics Technologies to Biomedical Imaging	660
First Results of Small Animal Imaging SPECT Detector for Cardiovascular Disease Studies on Mice	666
Development of a Low Noise Optoelectronic Integrated Readout with N-I-P a-Si:H Photodiode Array for Positron Emission Tomography .	671
The use of modern electronic flat panel devices for image guided radiation therapy: Image quality comparison, intra fraction motion monitoring and quality assurance applications	676
Neutron Imaging in a Hospital Environment.	686
Implementation of Image-guidance Techniques in Radiation Therapy	691
A Double Layer Silicon Detector for Single Photon Counting	700
Imaging of Absorbed Dose in Radiotherapy by a Polymer Gel Dosimeter	706
Radiochemical Separations: Useful Methods for the Preparation of No-carrier-added Solutions of Different Radionuclides for Metabolic Radiotherapy	711
Software Applications	717
GEANT4 Applications in Space	719

INTEGRAL - Operating High-Energy Detectors for Five Years in Space	729
ATLAS Inner Detector Alignment	739
New generation Data Transfer for AMS02	744
Finite state automata for parallelization of time-expensive operations	753
ATLAS Distributed Analysis Tools	758
MICE Software Design and Physics Performance	763
The Control System for the CMS Strip Tracking Detector	771
The Message Reporting System in the ATLAS DAQ System	776
Management of Equipment Databases at CERN for the ATLAS Experiment	781
GEANT4 Parametrization and Modeling of Pion Production in Proton-Nucleus Interactions based on HARP Experimental Data: Incident Proton Momenta are from 3 GeV/c to 12.9 GeV/c	786
Environmental Radiation Dose on the Moon	792
Track Finding in Gamma Conversions in CMS	797
The GEANT4-based ATLAS Fast Electromagnetic Shower Simulation	802
North American Medical Physics Applications of the GEANT4 Simulation Toolkit	807
Tools to monitor the quality of the ALICE-TOF detector data	815
The detailed simulation of the CMS detector	820
ATLAS Conditions Database Experience with the COOL Project	824
Intensity Variation of Gamma Rays due to Water Concentrations on the Lunar Surface	829
Space Experiments and Heliosphere	835
Reentrant Heliospheric Particles in 2D Drift Model	837
The INFN-LNF Space Climatic Facility	842
Particle Beam Tests for the GLAST-LAT Calibration	847
Simulation of a Time-of-flight Telescope for Suprathermal Ions in the Heliosphere	852
The PAMELA space mission	858
A Large Cavity Gamma-Ray Spectrometer for Measurement of Cosmogenic Radionuclides in Astromaterials by Whole Rock Counting	865
A New Approach to LAGEOS Spin Orientation and its Role in General Relativity Measurements	870
Evaluation of the flux of CR nuclei inside the magnetosphere	875
2D Stochastic Monte Carlo to evaluate the modulation of GCR for inner and outer solar system planets	881
The PoGOLite balloon-borne soft gamma-ray polarimeter	886
Performance the GLAST-LAT: Beam Test Results	891
The Alpha Magnetic Spectrometer on the International Space Station	896

The RICH detector of the AMS-02 experiment: status and physics prospects	901
Study of the Performance of the GLAST LAT as a Ground-based Cosmic Ray Observatory	906
The CALET Space Observatory for JEM-EF on the International Space Station	911
Tracking Devices	917
Spatial Resolution Studies of Micro Pattern Gas Detectors using the Charge Dispersion Signal	919
The LHCb Muon System	926
Design and Characterization of a Monolithic Active Pixel Sensor in 0.25 μm Technology	933
The CMS Silicon Strip Tracker: from integration to start-up	939
The VELO (V _E rtex L _O cator) at the LHCb experiment	946
The CDF II eXtremely Fast Tracker Upgrade	951
The DEPFET Active Pixel Sensor as Vertex Detector for the ILC	956
Integration and Commissioning of the ATLAS Muon Spectrometer	963
Results from the Commissioning Run of the CMS Silicon Strip Tracker	968
TRB for HADES and FAIR experiments at GSI	973
Low and High Intensity Beam Monitoring and Tracking	978
Development of a Detector (ALFA) to measure the Absolute LHC Luminosity at ATLAS	984
The Tracker-Muon Hardware Alignment System of CMS	989
FAST: a Compact Scintillating Fiber Detector for Antiproton Cross Section Measurements	994
Design of a Monolithic Active Pixel in ST 0.13 μm Technology	999
A Triple-GEM Detector with Pixel Readout for High-Rate Beam Tracking in COMPASS	1004
Track Reconstruction at the LHCb Experiment	1009
Prototype Drift Chamber for Tracking at Small Angles in the PANDA Experiment	1014
Production and Quality Assurance of Detector Modules for the LHCb Silicon Tracker	1019
Managing Bias Leakage Currents and High Data Rates in the BABAR Silicon Vertex Tracker	1024
Precision Calibration of the STAR TPC	1029
ATLAS Pixel Detector System Test and Cosmics Run	1034
 List of participants	 1039