

CONTENTS

Volume 1

Session No. 1B

RADIATION RISKS IN PERSPECTIVE

Role of Probabilistic Events in the Application of the Justification Criterion <i>R. Hock</i>	1
Radiation Risks : The Ethics of Health Protection <i>Margaret N. Maxey</i>	2
Three-Dimensional Dose-Response Models of Risk for Radiation Injury and Carcinogenesis <i>Otto G. Raabe</i>	6
Limitation of Exposure to UV in Comparison with Ionising Radiation : Policies and Regulations <i>Branko F.M. Bosnjakovic</i>	10
Estimation of Population Dose from all Sources in Japan <i>Tomoko Kusama, Takeo Nakagawa, Michiaki Kai and Yasuo Yoshizawa</i>	14
Food Irradiation Issues, Technical and Public, in the United States <i>Hank Koccol</i>	18
Improving Radiological Safety Through Organizational Design <i>Steve Rayner</i>	22
Risk of Occupational Injuries in the Industry of Japan <i>Tamiko Iwasaki, Atsuhiko Takeda and Sadayoshi Kobayashi</i>	23
Food Irradiation - A Fresh Case of Radiation Phobia <i>F.P.J. Robotham</i>	27
Difficulties in Using the Objective Health Detriment as an Indicator of the Radiation Harm in a Population <i>L. Frittelli</i>	32
The Weighting Factor for the Female Breasts; Implications for the Effective Dose Equivalent <i>Lucas B. Beentjes and John H. Duijsings</i>	36

Session No. 8B

INSTRUMENTATION - GENERAL INSTRUMENTATION

Basis for the Design of Radiological Protection Instrumentation for Nuclear Facilities <i>J.A.B. Gibson, M. Marshall, D.J. Ryden and R.D. Watkins</i>	40
Standardisation and Calibration for Radiation Protection Purposes in the United Kingdom <i>M.J. Rossiter</i>	44
Instrumentation Research and Development in U.S. Department of Energy Health Physics Programs <i>J.M. Selby, K.L. Swinth and E.J. Vallario</i>	48
Recherche et Developpement pour l'Instrumentation de Radio-Protection a l'Institut de Protection et de Sûreté Nucléaire <i>L. Fitoussi</i>	52
A Program to Monitor Worker Factors and External Extremity and Whole Body Occupational Radiation Exposures in a Academic Setting <i>Ralph A. Fobair</i>	58
U.S. Department of Energy's Radiological Calibration Intercomparison Program <i>F.M. Cummings and G.W.R. Endres</i>	61
ALARA Practices During Neutron Spectral Measurements Inside Reactor Containment <i>K.L. Soldat and G.W.R. Endres</i>	64
Evaluation of the Instrument Correction Factors Needed in Beta Dosimetry <i>K.L. Swinth, D.R. Sisk, J.M. Selby and E.J. Vallario</i>	68
High Sensitive Beta- and Gamma-Ray Spectroscopy and its Implication on Radiation Protection <i>Gerd Heusser</i>	72
A Classification System for Contamination Limits Considering the Radiological Relevancy for all Radioactive Nuclides <i>D.E. Becker, T.M. Ibach and J.R. Unsel</i>	73
The Work of a Provincial Radiation Control Unit in Canada <i>L.D. Brown</i>	77
Experience in Establishing and Operating a Radiation Dosimetry and Radioactivity Calibration Laboratory in the Republic of China <i>Wei-Li Chen</i>	81

Performance Characteristics of Selected "Biodegradable" Liquid Scintillation Cocktails <i>J.C. Elliott, P.S. Rielly and R.M. Gill</i>	85
A New Calibration Source Using a Thin Ion-Exchange Membrane <i>Makoto Yoshida, Hiroyuki Murakami, Masato Ishizawa, Kentaro Minami and Yoshikazu Yoshida</i>	89
Detection Limits of Gamma-Ray Spectroscopy Systems Used for Radioassay <i>J.H. Frazier and B.R. Thomas</i>	93
A Dose-Equivalent Rate Meter for Environmental Radiation Surveys <i>U. Lauterbach, G. Ebeling and M. Wojcik</i>	94
Measurements of Photoelectrons from a Photomultiplier Photocathode and their Applications to Dosimetry <i>Mitsuhiro Miuajima, Shinichi Sasaki and Eido Shibamura</i>	98
High Resolution Scintillator/Photodiode Detectors for Routine Monitoring <i>M.F. Cottrall and D.M. Raymond</i>	102
Advantages and Limitations of Si Surface Barrier and CdTe Detectors for Measurement of Diagnostic X-Ray Spectra <i>R.F. Laitano, R. Pani, R. Pellegrini, and M.P. Toni</i>	106
Objects of a Stable Beam Calibration System Based on Physical Constants <i>D. Gifford, H.J.A. Avery, T.J. Godden and D. Kear</i>	110
A Self-Contained Energy and Pulse Shape Liquid Scintillation Spectrometer <i>John W. McKlveen and G. William Klinger</i>	114
An Inexpensive Dosimeter Calibrator <i>L.J. Filipow</i>	119
Six Channel Low Background Alpha Counter <i>Zheng Renqui, Ye Zude and Dai Zhongde</i>	120
The Development of Energy Compensated Geiger Muller Detectors. For the Quantity Ambient Dose Equivalent <i>David Barclay and P.H. Burgess</i>	123
Session No. 5	
ACCELERATOR SAFETY	
Radiation Protection at High Energy Heavy Ion Accelerators <i>H.P. Weise</i>	124

Assessment of Occupational Exposures Around High-Energy Proton Accelerators <i>M. Höfert and J.W.N. Tuyn</i>	128
The Response of Survey Meters to Pulsed Radiation Fields <i>Richard C. McCall and Nisy E. Ipe</i>	133
Radiation Environment in the Tunnel of a High-Energy Proton Accelerator at Energies Near 1 TeV <i>Joseph B. McCaslin, Rai-Ko S. Sun, William P. Swanson, Alexander J. Elwyn, William S. Freeman, Hans Jöstlein, Craig D. Moore, Peder M. Yurista and Donald E. Groom</i>	137
25 Years Radiation Protection Practice at Low Energy Particle Accelerators <i>P.F. Sauermann, J. Knieper and H. Printz</i>	141
Neutron Yield of Medical Electron Accelerators <i>Richard C. McCall</i>	142
ρ -Be Fast Neutron Activation Experiment of Concrete <i>Akihisa Hara, Takashi Nakamura and Yoshitomo Uwamino</i>	146
Activation Products of a Heavy Ion Accelerator <i>Johannes Georg Festag</i>	147
Effect of Hydrogenous Shields on the Average Energy of Neutron Spectra <i>R.C. McCall and T.M. Jenkins</i>	149
Broad Beam Attenuation and Half Value Layer Determination in Baryt Concrete for 150-400 KV X-Rays <i>Dj. Ristić, P. Marković, and S. Vuković</i>	153
New Gamma-Ray Buildup Factors Including the Effect of Bremsstrahlung <i>M. Abou Mandour and E. Ghanem</i>	157
Session No. 2A	
BIOLOGY - METABOLISM AND CARCINOGENS	
Human Respiratory Tract Model for Radiological Protection - A Revision of the ICRP Dosimetric Model for the Respiratory System <i>W.J. Bair</i>	158
Osteosarcoma Induction By Plutonium-239, Americium-241 and Neptunium-237 : The Problem of Deriving Risk Estimates for Man <i>David M. Taylor</i>	162
Lymphatic Cancers and Leukemia Among Plutonium Workers <i>Gregg S. Wilkinson</i>	166

Epidemiological Follow-up of Uranium Miners in Canada <i>D.K. Myers and J. Muller</i>	167
Lung Cancer Mortality of Uranium Miners in France <i>M. Tirmarche, A. Raphalen, F. Allin and J. Chameaud</i>	171
Effects of Particle Size Distribution in the Analysis of Bioassay Results from Airborne Exposure Incidents <i>Richard Belanger, Eric Hope and Patrick Papin</i>	176
Oncogenes in Radiation-Induced Lung Tumors <i>M.E. Frazier, G.L. Stiegler, L.L. Scott, S.R. Peterson and R.J. Rausch</i>	177
Plutonium Particle Aggregation and Promotion of Pulmonary Carcinogenesis from Inhaled Plutonium <i>C.L. Sanders, K.E. McDonald and K.E. Lauhala</i>	178
Comparison de la Dissolution Pulmonaire du Tetrafluorure d'Uranium aux Tests de Dissolution In Vitro <i>S. Andre, H. Metivier, G. Lantenois, D. Auget, M. Boyer and R. Masse</i>	182
Absorption Gastrointestinale des Actinides par le Singe Nouveau Né <i>G. Lataillade, H. Metivier, C. Duserre, P. Fritsch and R. Masse</i>	186
Phagocyte Activity of Macrophages in Lungs of Human and Rats Exposed to $^{239}\text{PuO}_2$ <i>Tang Pei, Wang Shoufang, Chen Rusong</i>	190
Does the GI Tract Model of the ICRP Provide Reliable Dose Estimates? <i>P. Roth, Ch. Hansen and E. Werner</i>	191
Gastrointestinal Absorption of Soluble Uranium from Drinking Water <i>McDonald E. Wrenn, Narayani P. Singh, Herb Ruth and Dave Burleigh</i>	195
Solubility Classification of Yellowcake Produced by a Brazilian Uranium Mill <i>Elizabeth S. Mansur and Suelly M. Carvalho</i>	199
Session No. 6C	
NATURAL RADIATION - RADON EXPOSURE IN DWELLINGS	
UK Standards for Exposure to Radon Daughters in Dwellings <i>G.A.M. Webb and M.C. O'Riordan</i>	200
Public Exposure to Radon Daughters <i>A.D. Wrixon, B.M.R. Green and J.C.H. Miles</i>	201

Indoor Exposure in the Countries of the European Communities <i>H. Jammet, F. Luykx, J. McLaughlin and J. Sinnaeve</i>	205
Nationwide Distribution of Indoor Radon Measurements <i>H. Ward Alter and Richard A. Oswald</i>	209
Sources of "Higher" Radon Levels in Houses, the Resulting Radiation Exposure and Estimate of Risk <i>Gert Keller</i>	214
Radon Levels in Australian Homes <i>S.B. Solomon, J.R. Peggie, K.N. Wise and D. Paix</i>	215
Assessment and Control of Exposures to Natural Radiation in Denmark <i>Kaare Ulbak and Bjarne Stenum</i>	219
Radon Measurements in Indoor Air <i>C.F. Wong and R.G.S. Taylor</i>	220
Italian Survey to Evaluate the Average Effective Dose Equivalent Due to Radon Indoors <i>S. Benassai, G. Campos Venuti, G. Farchi, S. Mancioffi, S. Mariotti, S. Piermattei, S. Risica and L. Tommasino</i>	224
The Origin of Indoor Radon <i>A.D. Wrixon, S.L. Wan and E.D. Cliff</i>	228
An Experimental Study on Exhalation of ^{222}Rn and ^{220}Rn from the Soil and Influencing Parameters <i>Gert Keller and Markus Schütz</i>	232
Assessment of Indoor Radon Levels in Single Family Homes in New Mexico, U.S.A. <i>Judith Margo Metzger-Keele, Alan Hall, David T. Baggett and Michael Brown</i>	233
Health Risks of Indoor Radon Gas <i>Michael J. Suess</i>	234
Ventilation Techniques and Radon in Small Houses <i>Keskinen J, Graeffe G. and Janka K.</i>	238
Indoor Radon Level Measurements in Iran Using AEOI Passive Dosimeters <i>M. Sohrabi and A.R. Soleymanian</i>	242
Measurement and Dosimetry of Indoor Radon Concentrations in Kuwait <i>Adel A. Mustafa, C.M. Vasisht and J. Sabol</i>	246
An Estimate of the Natural and Enhanced Natural Radiation Dose in Belgium <i>H. Van Marcke and G. Eggermont</i>	251

Indoor Radon Measurements in the Shenzhen Region, The People's Republic of China <i>Ren Tianshan, Liu Zusen, Tang Lingquan, Jia Di, Chen Shuyi, Cui Guangzhi and Zhang Shurong</i>	252
 Session No. 8C	
INSTRUMENTATION - NEUTRON DOSIMETRY	
Is CR39 Worth the Effort? <i>Richard V. Griffith</i>	256
Twelve Years of Neutron Personnel Dosimetry Inter- comparison Studies at Oak Ridge National Laboratory: What Have We Learned? <i>Richard E. Swaja</i>	261
Routine Neutron Monitoring in the Federal Republic of Germany Using a Two-Component Albedo Dosemeter System <i>E. Piesch and B. Burgkhardt</i>	265
Application of a Tissue Equivalent Proportional Counter (TEPC) System in Different Radiation Fields <i>C. Barth, C. Wernli</i>	269
Nuclear Accident Dosimetry Facilities and Research and Development to Improve Measurements and Interpretation <i>J.A.B. Gibson, K.G. Harrison, H.J. Delafield and D.M. Baker</i>	273
Calculation Methods for Determining Dose Equivalent <i>G.W.R. Endres, J.E. Tanner, R.I. Scherpelz and D.E. Hadlock</i>	277
Reassessment of Atomic Bomb Neutron Dosimetry of Hiroshima by Using Residual Activity of Rock <i>T. Kosako, S. Ueno, M. Nakazawa, A. Sekiguchi, M. Hoski, K. Yokoro, K. Shizuma, K. Iwatani and H. Hasai</i>	281
Neutron Fluence to Dose and Dose Equivalent Conversion Factors: A Comparison for Spectra of Interest <i>C.S. Sims</i>	285
A New Type Active Personal Dosimeter with a Solid State Detector <i>T. Nakamura, M. Horiguchi, A. Yamadera, T. Suzuki and T. Yamano</i>	286
Development of a New Solid Neutron Detector for Pocket Dosimeter <i>T. Suzuki, T. Yamano, Y. Yoshida, K. Tsukino and T. Urushibata</i>	290

Experience With a Five Element Neutron Dosemeter <i>A.S. Keverling Buisman and H.W. Verhagen</i>	293
Personal Dosimetry Measurements at the Bevalac With CR-39 and NTA Emulsions at a High Energy Ion Accelerator <i>N.A. Greenhouse, J.B. McCaslin, T.M. de Castro, P.R. LaPlant, R.K. Sun, A.R. Smith and D.E. Hankins</i>	294
Comparison of Neutron Track Detector Sensitivity as a Function of the Etching Process <i>M.A. Parkhurst</i>	295
Advances in the Development of CR-39 Based Neutron Dosimeters <i>D.E. Hadlock and M.A. Parkhurst</i>	299
A Personnel Neutron Dosimetry System Using Low Frequency Electrochemical Etching <i>D.E. Hankins, S. Homann and J. Westermarck</i>	303
A 1/V Absorber Detector for Measuring Neutron Spectra <i>J.E. Tanner, W.D. Reece, L.W. Brackenbush and R.I. Scherpelz</i>	304
Practical Determination of Dose Equivalent Using Low Pressure Tissue Equivalent Proportional Counters <i>H.G. Menzel, G. Dietze and H. Schuhmacher</i>	308
Facilities and Procedures for Calibrating a Self- Fabricated Boron-Loaded Personnel Neutron Dosimeter <i>Shian-Jang Sn and Shann-Horng Yeh</i>	312
Experimental Simulation and Characterization of Neutron Spectra for Calibration Radiation Protection Device <i>J.L. Chartier, F. Posny, R. Medioni, M. Sueur and M. Buxerolle, M. Massoutie and J. Kurkdjian</i>	313
Use of American and Taiwanese Coins as Quick Sort Indicators of Neutron Accident Exposure <i>Shann-Horng Yeh and R.E. Swaja</i>	314
Emission Rate Measurement of a Cf-252 Neutron Source by Manganous Sulfate Bath Method <i>Sun-Tae Hwang and Kun Jai Lee</i>	315
Session No. 13A	
NON-IONISING RADIATION (PLENARY)	
Activities of the International Non-Ionizing Radiation Committee of IRPA <i>H.P. Jammett and A.S. Duchene</i>	319

Carcinogenic Potential of Non-Ionizing Electromagnetic Radiation <i>Michael H. Repacholi</i>	320
 Session No. 13C	
NON-IONIZING RADIATION - OPTICAL RANGE, VDTS	
Hazard Control Measures for Lasers <i>David H. Sliney</i>	328
Risks of Chronic Exposure of the Eye by Optical Radiation <i>John Marshall and David H. Sliney</i>	332
Solar Radiation and the Ultraviolet Radiation Exposure Standard <i>C. Roy, P. Gies and G. Elliott</i>	333
Alleged Radiation Risks from Visual Display Terminals <i>B.G. Knave and U.O.V. Bergqvist</i>	337
The Anatomical Distribution of Solar UVR with Emphasis on the Eye <i>P. Gies, C. Roy and G. Elliott</i>	341
UV - Radiation : An Epidemiological Study on Malignant Melanoma in General Population and a Model of Occupational Study on Research Workers <i>R. Horn Orni, C. Pala and G. Petrelli</i>	345
Safety in the Use of Non-Ionising Radiation : A Few Sample Surveys <i>R.N. Sachdev, G. Swarup and K.K. Rajan</i>	346
Safety Measures for their Correct Use in the Work-places, as a Result of Many Evaluations of Different Human-Computer Interaction Factors <i>Leonardo Petrella and Anna Russo</i>	350
Experimental Determination of a Laser Retinal Lesion Threshold in the Visible Spectrum <i>D. Courant, L. Court, E. Abadie and B. Brouillet</i>	351
Retinal Lesions Induced on Rabbits by Single and Low Energy Laser Irradiations, Histological and Ultrastructural Study <i>G. Gueneau, V. Baille, D. Courant and L. Court</i>	355
 Session No. 6A	
NATURAL RADIATION - RADON IN MINING	
Problems in Applying the Effective Dose Equivalent in Uranium Mining <i>Wm. R. Bush</i>	359

Verification of the Predicted Levels of Environmental Radon, Originating from Multiple Large Area Sources <i>D. van As and A. Grundling</i>	360
Criteria for Introducing Individual Dosimetry for Miners Exposed to Radon Daughters in Non-Uranium Mines <i>W. Chruscielewski, D. Kluszczyński and T. Domanski</i>	364
Effectiveness of a 1.5m Thick Cover of Smelter Slag in Reducing Radon Emanation from Uranium Tailings <i>P.C. Crouch, A.D. Johnston, G. Palmer and W.J. Spehr</i>	365
Method for Estimating Rn-222 Daughters Intake from the Content of Pb-210 in Bone <i>Ruwei Ma, Yueru Jin, Xiushen Zhang and Renqui Zheng</i>	369
A Research in the Cleaner for Removal of Dust and Radon Daughters <i>Wang Bingchuan, Chen Baoshou</i>	370
Radon Emanation Measurements from Uranium Ore Tailings in Argentina <i>H.E. Ciallella, D.D. Jordan, A.A. Oliveira and C.E. Nollmann</i>	373
Ions, Electric Fields and Radon Daughters : Effects of Filtration and Electrostatic Plateout <i>Niels Jonassen</i>	377
Combined Effect of Filtration and Unipolar Air Ionization on Radon Progeny <i>J. Keskinen, J. Laaksonen and M. Lehtimäki</i>	381
On the Multipoint Radon Monitoring System in the Mine <i>Ryuhei Kurosawa, Mitsunobu Tobe, Atsushi Saito, Yozou Sugitsue, Yoshiaki Ninagawa and Hideo Noda</i>	382
Response of Continuous Working Level Monitors to Transient Radon Concentrations <i>Helen Leung and Colin R. Phillips</i>	383
Radon Measurements in Greece <i>E. Georgiou, K. Ntalles, M. Molfetas, A. Athanassiadis and C. Proukakis</i>	387
Environmental Impact of Uranium Mining in the Vicinity of the Grand Canyon National Park <i>John W. McKlveen</i>	391
The Computer System of Automatical Microscope Analysis of Miners' Individual Dosimeters <i>A. Zorawski, M. Hawrynski and D. Kluszczyński</i>	396

INSTRUMENTATION - PERSONNEL DOSIMETRY

- The Implications of ICRU Recommended Quantities for Individual Monitoring 400
Siegfried R. Wagner
- Results of the European Community's Beta Inter-comparison Programme of Individual Dosemeters in 1986 404
T. Bigard, H. Sequin, H. Böhm, J.-L. Chartier, P. Christensen, T.M. Francis and L. Lembo
- U.S. Department of Energy Laboratory Accreditation Program for Personnel Dosimetry Systems (DOELAP) 408
R.D. Carlson, T.F. Gesell, F.L. Kalbeitzner, P.L. Roberson, K.L. Jones, J.C. MacDonald and E.J. Vallario
- Dosimetrie Personnelle en Suisse Retrospective des Dix Dernieres Annees 412
B. Michaud, A. Auf der Maur, A. Donath, J. Dutrannois, H. Felber, H. Jossen, H. Lengweiler, H. Lüthy, H.J. Pfeiffer, S. Prêtre, Th. Samuel, J.-F. Valley, Ch. Vernli and W. Zeller
- The Adequacy of Current Methods of Skin Dose Assessment 416
M.W. Charles, C. Hart and S. Holgate
- Study of Dosemeter Parameters for the Measurement of $H(0.07)$ for Personal Beta Dosimetry 417
P. Christensen and V. Vanamo
- The Fading of LiF Chips Irradiated by UV-Protons 421
B. Ben-Shahar and Y. Laichter
- Dosemeter for Measuring Partial Body Dose and Additionally Determining the Type of Radiation 425
M. Heinzelmann and M. Pagenkemper
- A Feasibility Study for Dosimetry with Thermally Stimulated Exoelectron Emission (TSEE) in BeO 429
C. Wernli and R. Zuk
- Automatic Phosphate Glass Dosimetry System Using Pulsed UV Laser Evaluation 433
E. Piesch, B. Burgkhardt, M. Vilgis, T. Omori and T. Ikegami
- What is the Best Annealing Treatment for LiF Dosemeters? Some Experimental Results 437
C. Caporali, G. Scarpa and A.L. Mancino

Experience in Personnel Beta Dosimetry in an Argentine Candu Reactor <i>Carlos Alberto Salas</i>	440
The U.S. Department of Energy Personnel Dosimetry Evaluation and Upgrade Program <i>L.G. Faust, K.L. Swinth, C.M. Stroud and E.J. Vallario</i>	444
Intercomparison of Film Badge and Pocket Dosimeter for Tc-99m X-Rays <i>E.J. Gandsman and D.L. North</i>	448
Skin Dose Estimates from Radioactive Skin Contamination <i>C.J. Tung, G.T. Peng and C.L. Tseng</i>	449
Relationship Between \bar{Q} Defined in Terms of γ For 1 μ m Sites and Initial Radiation Damage <i>L.A. Braby, W.E. Wilson and N.F. Metting</i>	450
Depth Dose Profiles Resulting from Beta Emitters on the Skin Surface <i>R.I. Scherpelz and W.D. Reece</i>	454
Recombination Chamber as a Device for Direct Determination of Ambient Dose Equivalent of Mixed Radiation <i>M. Zielczynski</i>	458
 Session 13B	
NON-IONISING RADIATION - BIOEFFECTS, SURVEYS AND SAFETY	
Activities at the Swedish National Institute of Radiation Protection (NIRP) for the Control of Hazards from Non Ionizing Radiation <i>Enn Kivisäkk</i>	459
Safety of Diagnostic Ultrasound <i>Dietrich Harder and Karl Giese</i>	463
Effects of 2450 MHz Microwave Radiation on Meiosis and Reproduction in Male Mice <i>E. Manikowska-Czerska, P. Czerski and W.M. Leach</i>	464
Radiofrequency Radiation : Safe Working Practices in the Royal Australian Air Force <i>K.H. Joyner and K.R. Stone</i>	465
Effects of RF Low Levels Electromagnetic Fields on Paramecium Primaurelia <i>S. Tofani, B. Testa, G. Agnesod, L. Tariaglino and G.C. Bonazzola</i>	469

Exposure to Radiofrequency (RF) in Industry. Examples of Measurement and Improvement <i>S. Orsini, T. Terrana and F. Merluzzi</i>	473
Metallic Implants and Exposure to Radiofrequency Radiation <i>K.H. Joyner, B. Hocking, A.H.J. Fleming and I.P. Macfarlane</i>	477
RF Fields at Broadcast Transmitting Sites <i>G.E. Hatfield</i>	481
Levels of 50Hz Magnetic Fields in the Home and Office Environment in Australia <i>T.J. Boal and K.H. Joyner</i>	485
Effects of 2450 MHz Exposure on Human Lymphocyte Transformation In Vitro <i>E.C. Elson, E. Manikowska-Czerska, C.C. Davis and P. Czerski</i>	489
Session No. 8A	
INSTRUMENTATION - ENVIRONMENTAL MONITORING	
Concept and Validation Studies of the Real-Time Reactor-Accident Consequences Assessment Model "ECOSYS" <i>Herwig G. Paretzke, Peter Jacob, Heinz Müller and Gerhard Prohl</i>	490
L'Accident de Tchernobyl : Difficulties de la Comparaison des Modeles et des Mesures <i>A. Despres</i>	491
Influence of Precipitation, Building and Plume Rise on the Doses Received by the Population in Case of Accidents in a PHWR-Power Plant <i>Ing. Maria Cristina Conte</i>	495
Dose Estimation in Case of Loca Followed by Core Melt-down in the Argos PHWR-380 MWe <i>Ing. Maria Cristina Conte</i>	499
A Computer-Aid System for Off-Site Nuclear Emergency Situations Management <i>D. Lattanzi, F. Lucci and S. Merolli</i>	502
A Personal Computer Program for Radiological Impact Evaluation After Accidents <i>V.V. Shirvaikar</i>	506
New Developments in the Rapid Analysis of Off-Site Consequences of Airborne Radioactive Releases <i>R.G. Jackson and G.C. Meggitt</i>	510

ADDCOR : An Atmospheric Dispersion and Dosimetry Code for Operators and Regulators <i>M.C.E. Petersen and G.H. Clark</i>	514
A Computer Model on Consequences of Sudden Release of Radioactivity into the Environment <i>M. Chandrasekhar, Hemant Kumar, P. Ramaseshu, M.M. Gupta and A.R. Reddy</i>	515
Computer-Controlled Continuous Measurement of Radio- active Aerosol Near Nuclear Power Plants <i>Masaki Ohnishi, Yoshihiro Kosaka and Hironobu Hayakawa</i>	516
Remote Measuring System for Monitoring the Iodine Immission in the Vicinity of Nuclear Power Plants <i>M. Heinzelmann and M. Keller</i>	520
In-Situ Measurement of Radioactive Gases Using Ge(Int) Spectrometry for Estimating the Gases Flow Rate <i>T. Hashimoto, M. Nishikawa, T. Watari and T. Uchino</i>	524
A New Type of Stack Gas Monitor Directly Indicating Exposures in Environment <i>Kentaro Minami, Hiroyuki Murakami and Yoshikazu Yoshida</i>	528
Application of Activated Carbon Fiber to a Filter Used for Airborne Radioiodine Sampling <i>Shohei Kato, Mikio Murata, Yoshikazu Yoshida and Nobuo Ishizaki</i>	532
First Results of Testing a Stepwise Rotated Aerosol Filter System for Environmental Monitoring <i>K. Heinemann</i>	536
Improvement of Tritium Enrichment Electrolysis Cell for Environmental Monitoring <i>S. Kimura</i>	540
Measurement of Plutonium Isotopic Activity Ratio in Low Level Plutonium Samples <i>T. Matsunami, A. Mizohata, T. Mamuro, T. Tsujimoto and Y. Katsurayama</i>	544
Actinide-in-Air Monitoring in the Presence of Radon and Thoron <i>A. McWhan and G.C. Meggitt</i>	548
Quality Assurance of Environment : Radioactive Measurement in China <i>Huang Zhijian, Li Xiaoge, He Zonghui, Li Yuanxin and Teng Huijie</i>	552

Development of a Monitoring Method in the Radiation Field Under the Ground <i>Y. Nakashima, H. Ohta, T. Akazawa, K. Megumi, M. Doi and T. Ishiyama</i>	553
Network of Radiation Monitors (NORM) at KEK and its Present Status <i>M. Miyajima, S. Sasaki, K. Hozumi and K. Katch</i>	557
The Use of the Helicopter as a Means of Tracing a Radioactive Plume <i>D.E. Waldron</i>	561
A Operational Network for Radioactive Contamination in Foodstuffs in The Netherlands <i>P.H. Dignum</i>	562
System Set Up by the C.E.A. Group for Monitoring Environmental Radioactivity in Real Time <i>R. Prigent, Ph. Lebouleux and J. Matutano</i>	563
Instrumental Procedures to Characterize Radiological Impact on a Continuous Basis <i>F. Sagastibelza Chivite, J.E. Otamendi Carrillo and M. Fernandez Garcia</i>	564
Mobile Unit for Operative Interventions in Hazardous Situations of Contamination <i>D. Galvan, G.F. Marcoal di and A. Bazzan</i>	565
Session No. 12A	
NUCLEAR FUEL CYCLE - GENERAL	
Radiation Protection in Nuclear Industry Production <i>Zhou Zhumou</i>	568
Radiological Impact of Nuclear Power in Sweden - Principles and Trends <i>B: Ake Persson and Jan Olof Snihs</i>	569
Dose Reduction and Control at the Winfrith Reactor <i>B.G. Chapman and T.E. Blackman</i>	573
Radiation Doses at ENEA Nuclear Research Sites <i>M. Litido, D. Lattanzi and L. Lembo</i>	577
Debits d'Exposition dans les Centrales REP EDR : Analyse et Tendances <i>A. Brissaud, P. Ridoux, J-P. Berthet, C. Chevalier and S. Anthoni</i>	581
Reasons Why TVO Has One of the Lowest Collective Doses Among the World's Nuclear Power Plants <i>Reijo O. Sundell</i>	585

Hybrid Log-Normal Analysis of Worker Doses in
Special Jobs at Research Reactors JRR-2 and
JRR-3

*S. Kumazawa, K. Matsushita, H. Yamatoto and
T. Numakunai*

