

## CONTENTS

<b>Modified Random Hinge Transport Mechanics and Multiple Scattering Step-Size Selection in EGS5</b> <i>S. J. Wilderman and A. F. Bielajew</i>	1
<b>New Photon Physics in EGS5</b> <i>Y. Namito and H. Hirayama</i>	19
<b>Benchmark Calculation for EGS5</b> <i>W. R. Nelson, J.C.Liu, H.Hirayama, Y.Namito, A.F.Bielajew and S.Wilderman</i>	27
<b>The Cross-Section Dividing Method and the Simultaneous Distribution Between the Deflection Angle and the Spatial Displacement for Charged Particles Penetrating through Matters</b> <i>T. Nakatsuka and K. Okei</i>	47
<b>Track Tracing of Charged Particles with Simultaneous Distribution between the Deflection Angle and the Spatial Displacement</b> <i>K. Okei and T. Nakatsuka</i>	57
<b>A Visual User Interface Program, EGSSWIN, for EGS4</b> <i>R. Qiu, J. L. Li and Z. Wu</i>	68
<b>Interfacing EGS4 with Geant4 - An Example of Virtual Monte Carlo Approach</b> <i>K. Murakami</i>	76
<b>LSCAT-GISMO - an object-oriented Framework for Particle Simulation</b> <i>J. Giersch and A. A. Weidemann</i>	82
<b>ROSI - A Monte Carlo Simulation for X-ray Tubes</b> <i>F. Sukowski</i>	88
<b>Examination of the Program to Avoid Round-off Error</b> <i>Y. Shiota, K. Tabushi, K. Shimomura, S. Kito and T.Kusunoki</i>	99
<b>Research for Deciding the Number and Each Width of Bins of the Energy Spectrum of the X-rays Used for Radiotherapy</b> <i>S. Kito, K. Tabushi, K. Shimomura, Y. Shiota and T. Kusunoki</i>	106
<b>Comparison Convolution Method with Monte Carlo Simulation by EGS4</b> <i>T. Kusunoki, Y. Obita K. Tabushi, K. Shimomura, S. Kito and Y. Shiota</i>	113
<b>Application of EGS4 to Intensity Monitor Development for Synchrotron Radiation at SPring-8</b> <i>N. Nariyama</i>	123

<b>Investigation of Feasibility and Unfolding Method of a Measured Spectra Using EGS4 Code</b>	131
<i>G. H. Yoo, K. J. Chun, S. H. Hah and H. M. Kim</i>	
<b>Verification for the Disagreement between Effective Point and Geometrical Center of Thimble Ionization Chamber</b>	139
<i>K. Shimomura and K. Tabushi</i>	
<b>Outline of the Dose Calculation System IMAGINE for Radiotherapy</b>	145
<i>K. Saito, E. Kunieda, Y. Narita, H. Kimura, M. Hirai, H. M. Deloar, K. Kaneko, M. Ozaki, T. Fujisaki, A. Myojoyama and H. Saitoh</i>	
<b>Development of EGS4 User Codes for IMAGINE</b>	148
<i>S. Takagi, J. Funabiki, Y. Oyatsu, O. Sato, K. Saito, H. Kimura, M. Hirai, H. Saito and A. Myojoyama</i>	
<b>Optimal Parameters for Energy Spectral Calculations of Mega Voltage Photon Beam Using Monte Carlo Simulations</b>	156
<i>A. Myojoyama, H. Saitoh, T. Fujisaki, Y. Narita, and K. Saito</i>	
<b>Soft Tissues in the Patient Digitization for the Monte Carlo Radiotherapy Treatment Planning</b>	163
<i>M. Hirai, J. Funabiki, S. Takagi, H. Saitoh and K. Saitoh</i>	
<b>Monte Carlo Simulations for Stereotactic Radiotherapy System with Various Kilo Voltage X-ray Energy</b>	172
<i>HM. Deloar, E. Kunieda, T. Kawase, H. Saitoh, M. Ozaki, T. Fujisaki, A. Myojoyama, K. Saito S. Takagi, O. Sato and A. Kudo</i>	
<b>Monte Carlo Simulations of Dose Distributions for 4 and 10 MV Photon Beams from a Varian Clinac 2100C Accelerator</b>	180
<i>F. Araki</i>	
<b>Monte Carlo Calculation of In-air Output Factors</b>	193
<i>P. I. Wang, R. D. Sheu, C. J. Lo, C. S. Chui, U. T. Lin, W. L. Chen</i>	
<b>Monte Carlo Calculations and GafChromic Film Measurements for Leksell Gamma Knife Unit</b>	200
<i>H. W. Lee, R. D. Sheu, U. T. Lin and W. L. Chen</i>	
<b>EGS Particle Trajectory and Geometry Display Program - CGVIEW Ver 1.2 -</b>	208
<i>A. Takamura, T. Sugita, Y. Namito and H. Hirayama</i>	
<b>Development and Validation of a Monte Carlo Dosimetric Quality Assurance System for Dynamic Intensity-Modulated Radiotherapy</b>	214
<i>T. Yamamoto, Y. Miyabe, S. Yano, T. Teshima, T. Mizowaki, Y. Nagata and M. Hiraoka</i>	

<b>Comparison with a 4MeV X-ray Dose and Monte Carlo Simulation using a Human Body Phantom</b>	224
<i>A. Chadani, K. Koshida, K. Minami, K. Ejiri, M. Shimo, Y. Hibino, K. Egami, S. Arakawa, H. Nakagawa, C. Kawabata and M. Hayakawa</i>	
<b>Monte Carlo Simulation for Electron-Loss and Photon-Scattering Corrections for Parallel-Plate Free-Air Chambers</b>	230
<i>T. Kurosawa, N. Takata and Y. Koyama</i>	
<b><math>Q_\beta</math> Measurement Using A Total Absorption Detector With EGS4 Generated Response Functions</b>	237
<i>H. Hayashi, I. Miyazaki, M. Shibata, K. Kawabe, Y. Kojima, A. Taniguchi</i>	
<b>Monte Carlo Calculations of Free-Air Ionization Chamber Correction Factors for Electron Loss and Photon Scatter at INER</b>	245
<i>U. T. Lin, R. D. Sheu and W. S. Hwang</i>	
<b>Development of EGS-based 3D Brain SPECT Simulator (3DBSS)</b>	261
<i>T. Yokoi, T. Hashimoto and H. Shinohara</i>	
<b>Implementation and Performance Evaluation of Depth-Dependent Correction in SPECT for Myocardial Numerical Phantom: A Simulation Study Using EGS4</b>	270
<i>T. Hashimoto, T. Imae, D. Usuba, T. Momose, H. Shinohara and T. Yokoi</i>	
<b>Exposure Doses to Medical Workers Concerning Positron Emission Tomography</b>	280
<i>I. Yamaguchi, H. Narita and Kobayashi</i>	
<b>Evaluation of External Radiation Exposure of Personnel Involved in Veterinary Nuclear Medicine</b>	285
<i>N. Komatsubara, N. Ito, M. Natsuhori, T. Sano, T. Ishikawa, S. Hatakeyama, S. Futatsugawa, K. Terasaki and H. Hirayama</i>	
<b>Application of EGS4 Code for the Evaluation of Specific Absorbed Fractions and S values for Internal Dosimetry</b>	292
<i>S. Kinase</i>	
<b>Monte Carlo Calculation of Normalized Glandular Dose in Mammography</b>	298
<i>J. L. Hsu, U. T. Lin and W. L. Chen</i>	
<b>Dose Distribution in the Human Body in General Radiography Using Monte Carlo Simulation</b>	308
<i>M. Hayakawa, K. Koshida, C. Kawabata, A. Chadani, H. Nakagawa and K. Kuwamura</i>	
<b>Dose Distribution of Stray Radiation for Interventional Radiology</b>	314
<i>C. Kawabata, K. Koshida, H. Nakagawa, M. Hayakawa, A. Chadani, A. Fukuda, K. Noto and T. Matsubara</i>	

**Development of the User Code UCBEAM and Comparison of the  
Measured Doses using a Torso Phantom and the Calculated Doses  
using “Otoko”**

321

*S. Ohnishi, N. Nariyama, K. Saito, N. Odano, K. Sawada and A. Konnai*

**Estimation of Effective Dose Caused by Stray Radiation of Photons,  
Electrons and Positrons Around a Small Storage Ring for a  
Synchrotron Radiation Facility**

328

*Y. Takashima and K. Kobayakawa*