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Warning Messages 214 2.2.6 Results 216 2.2.6A: From the Point Model. 216 2.2.6B: Rates Calculated without Point Model assumptions 221 2.3 Gamma pulse height (to be completed) 227 2.4 Active Neutron Example: Cf Shuffler. 231 2.4.1 Description and input file. 231 2.4.2 Results 234 Section 3: Examples of Advanced Concepts 240 Section 3.1 Variance Reduction 240 3.1.1 Introduction 240 DRAFT 6 3.1.2 Multigroup Weight Windows and Time Splitting: Lead Slowing Down Spectrometer 242 3.1.2.1 Input File Notes 253 3.1.2.2 Variance Reduction Step 1: simplify problem and add weight window generator 256 3.1.2.3 Iteration 2 .261 3.1.2.4 Additional iterations 263 3.1.2.5 Cylindrical Mesh Weight Window Summary 267 3.1.3 Cell-based weight windows for the Lead Slowing Down Spectrometer 271 3.1.4 Time splitting 277 3.1.5 Variance Reduction for the Cf Shuffler. 280 3.1.5.1 Cf Shuffler modified input 280 3.1.5.2 Particle production bias, time splitting, and windows 285 3.1.5.3 Analysis of Cf Shuffler Variance Reduction 288 3.2 DXTRAN and Other Capabilities for Distributed Source Problems 288 3.2.1 UF6 Cask Model 290 3.2.2 DXTRAN 300 3.2.3 Source Position Biasing 307 3.2.4 Best Single Detector Solution 310 3.3 Neutron Detector Operation in More Detail. 318 3.3.1 Introduction 318 (i) Make reaction products (model, data) and recoil nuclei 318 (ii) Track created particles in real gas composition 321 (iii) Tally energy deposition of particles in active volume (F8 CAP EDEP for coincidence/multiplicity counting) 322 Examples 322 3He detector Pulse Height. 322 3He Detector Coincidence Calculation 324 10B-lined detectors 325 References 332 Section 4: Additional Topics 332 4.1 Troubleshooting or "How can I be confident in the results?" 332 4.1.1 Geometry and Materials. 333 4.1.2 Detector modelling 334 DRAFT 7 4.1.3 Source modelling 334 4.1.4 Sample modelling 335 4.1.5 Tracking limitations 335 4.1.6 Nuclear Data 335 4.1.7 Statistics 336 4.1.8 User . 337 4.1.9 Summary and Conclusions - What to do?. 337 4.2.1 Analysis of Delayed Neutron Production 338 4.2.2 Comparison of Table Physics vs Model Physics 342 5 References and Bibliography. 354 6 Table of Figures 355.

Sommario/riassunto

This open access book is a pedagogical, examples-based guide to using the Monte Carlo N-Particle (MCNP^a) code for nuclear safeguards and non-proliferation applications. The MCNP code, general-purpose software for particle transport simulations, is widely used in the field of nuclear safeguards and non-proliferation for numerous applications including detector design and calibration, and the study of scenarios such as measurement of fresh and spent fuel. This book fills a gap in the existing MCNP software literature by teaching MCNP software usage through detailed examples that were selected based on both student feedback and the real-world experience of the nuclear safeguards group at Los Alamos National Laboratory. MCNP input and output files are explained, and the technical details used in MCNP input file preparation are linked to the MCNP code manual. Benefiting from the authors' decades of experience in MCNP simulation, this book is essential reading for students, academic researchers, and practitioners whose work in nuclear physics or nuclear engineering is related to non-proliferation or nuclear safeguards. Each chapter comes with downloadable input files for the user to easily reproduce the examples in the text.
