

Geant 4

*IEEE Nuclear Science Symposium and Medical Imaging Conference
Short Course*

Simulation Techniques Using Geant4

Maria Grazia Pia (*INFN Genova, Italy*)
MariaGrazia.Pia@ge.infn.it

Dresden, 18 October 2008

<http://www.ge.infn.it/geant4/events/nss2008/geant4course.html>

This course exploits training material developed by several Geant4
Collaboration members: thanks to all of them!

Conclusion

Feedback and outlook

What comes next

- Once cannot learn Geant4 in one day...
 - ...but hopefully the vision you acquired today will guide you in your next steps
- Feel free to contact myself and the Geant4 Collabortion
 - Your feedback is welcome!
- Various Geant4-related papers by former Geant4 Course students published in IEEE TNS
 - a pleasure for the Associate Editor!

IEEE TRANSACTIONS ON
**NUCLEAR
SCIENCE**
A PUBLICATION OF THE IEEE NUCLEAR AND PLASMA SCIENCES SOCIETY

JUNE 2007 VOLUME 54 NUMBER 3 IETNAE (ISSN 0018-9499)

PART II OF TWO PARTS

REGULAR PAPERS

ANALOG AND DIGITAL CIRCUITS

Resolution Limits in 130 nm and 90 nm CMOS Technologies for Analog Front-End Applications 531
M. Manghisoni, L. Ratti, V. Re, V. Speziali, and G. Traversi

A 60 μ W High Linearity CMOS Peak-Stretcher/Discriminator 538
S. Caccia and G. Bertuccio

ASIC for Small Angle Neutron Scattering Experiments at the SNS 541
G. De Geronimo, J. Fried, G. C. Smith, B. Yu, E. Vernon, C. L. Britton, W. L. Bryan, L. G. Clonts, and S. S. Frank

60-Channel 10 μ s Time-Resolution Counter Array for Long Term Continuous Event Counting 549
D. Audino, F. Baroni, R. Roncella, R. Saletti, S. Tisa, F. Zappa, M. Belluso, and G. Bonanno

Noise Optimization of Charge Amplifiers With MOS Input Transistors Operating in Moderate Inversion Region for Short Peaking Times 555
P. Grybos, M. Idzik, and P. Maj

ASTROPHYSICS AND SPACE INSTRUMENTATION

Basic Performance of PHENEX: A Polarimeter for High ENERgy X rays 561
Y. Kishimoto, S. Gunji, Y. Ishigaki, M. Kunno, H. Murayama, C. Ito, F. Tokanai, K. Suzuki, H. Sakurai, T. Mihara, M. Kohama, M. Suzuki, A. Hayato, K. Hayashida, N. Anabuki, M. Morimoto, H. Tsunemi, Y. Saito, T. Yamagami, and S. Kishimoto

CALORIMETERS

Performance of the Zero Degree Calorimeters for the ALICE Experiment 567
N. De Marco, R. Araldi, E. Chiavassa, C. Cicalò, P. Cortese, A. De Falco, G. Dellacasa, A. Ferretti, M. Floris, M. Gagliardi, M. Gallio, R. Gemme, A. Masoni, P. Mereu, A. Musso, C. Oppedisano, A. Piccotti, F. Poggio, G. Puddu, E. Scapparini, S. Serci, E. Siddi, D. Stocco, G. Usai, E. Vercellin, and F. Yermia

The CMS Electromagnetic Calorimeter 574
M. Paganoni

COMPUTING AND SOFTWARE

Geant4 Model for the Stopping Power of Low Energy Negatively Charged Hadrons 578
S. Chauvie, P. Nieminen, and M. G. Pia

Geant4 Atomic Relaxation 585
S. Guatelli, A. Mantero, B. Mascialino, P. Nieminen, and M. G. Pia

(Contents Continued on Page S29)



Outlook

- Geant4 will celebrate its 10th birthday since its first public release on 15 December 2008
- **A mature system**
 - ~1000 citations of Geant4 NIM 2003 reference paper as of today
 - Most cited publication in Nuclear Science & Technology (JCR®)
- **Still under development**
 - New features, refinements etc.
- **New experimental domains, new challenges...**
 - Project to revisit the design of Geant4 kernel to address new experimental challenges recently launched at INFN
 - Co-working condensed/discrete schemes, Monte Carlo/deterministic methods

Many Geant4-related talks in NSS Computing & Software sessions

Excellent opportunity to learn more: do not miss them!