

Geant4 General Papers

History and Some Considerations

Geant4 Workshop at Lison

13 October, 2006

Katsuya Amako

(KEK)

1st General Paper

- **“Geant4 simulation toolkit”**
NIM A 506 (2003) 250-303
- **Goal:** Serve as the main reference to Geant4 toolkit
- **Strategy:** Organized the editorial board and wrote the paper.
- **General Editors:** J. Allison, K. Amako, M. Asai
- **Sub-editors:**

Author list:	J. Apostolakis
Abstract:	J. Apostolakis
Section 1 - Introduction:	P. Gumplinger
Section 2 - Design Overview:	G. Cosmo
Section 3 - Software process:	F. Jones
Section 4 - The kernel:	H. Kurasige and J. Allison
Section 5 - Physics processes:	P. Arce and T. Sasaki
Section 6 - Additional capabilities:	M. Verderi
Section 7 - Interactivity:	S. Tanaka
Section 8 - Conclusion:	P. Truscott
Acknowledgements:	J. Allison
References:	K. Amako

1st General Paper: Short History

- **April 2002**
1st draft completed - circulated to all G4 collaborators
- **July 2002**
A final draft of the Geant4 general paper prepared
[Issue]
 - Where to submit - NIM A or B?
 - ⇒ Submitted to NIM A
- **August 2002**
Various G4 member institutes started to create preprints.
- **September 2002**
The paper has been accepted by NIM A.
- **October 2002**
Referee's comment → Paper too long - split it into 2!
- **March 2003**
Revised/Final version submitted to NIM without splitting
(Pain-taking negotiation by J. Allison with the referee!)
- **March 2003**
Revised/Final G4 General Paper has been accepted by NIM A

2nd General Paper

- **“Geant4 developments and applications”**
IEEE/TNS 53 No. 1 (2006) 270-278
- **Goal:**
An overview of recent developments of the toolkit
- **Strategy:**
To describe the progress of the G4 toolkit made since the publication of the 1st general NIM paper. The draft was created based on the CHEP04 paper written by J.Apostolakis, M.Asai and J.Wellisch by the editors. Then they asked related working groups to add more information. No sub-editors and editorial board organized. Each category coordinator took the responsibility to finalized the draft. The strategy agreed in the Geant4 collaboration meeting at LAPP on 14th December.
- **General Editors:** K. Amako, M-G. Pia

2nd General Paper: Short History

- **December 2004**

 - 1st draft completed - circulated to all G4 collaborators for feedback

- **April 2005**

 - The final draft completed - circulated to all G4 collaborators for feedback

- **July 2005**

 - Submitted to TNS/IEEE

- **November 2005**

 - Accepted by TNS/IEEE – because of summer vacation and other issues of IEEE internal organization, the response from the referee was quite slow.

- **December 2005**

 - Submitted the revised version to TNS/IEEE and it was accepted

 - [Issue]**

 - Submitted the paper to arXiv (hep-ex) though it was refused:**

 - Not appropriate for hep-ex**

 - Asked to the moderator the reason but they didn't answer!**

Lessons Learned

- **Publication of a general paper is a slow process:**
 - Consumes time and energy to accomplish an agreement on the content by all collaborators.
 - Because it is quite different from normal HEP instrument papers, the negotiation with journal referees tends to take long time.
- **Editors play the essential role.**
 - The major role of the editor is to push all collaborators to contribute to the paper in time.
- **Cooperation by the collaborators especially the category coordinators essential.**
 - Here we haven't found any problem in the past.
- **Publication of a general paper is the most important way to show our effort to public. Also it is the only way the G4 collaboration gives appreciation to collaborators who do 'plumbing works'. Also it is essential for young collaborators to have it for their career.**

Possible Strategy for Future

- Try to publish a general paper periodically
 - As a scientist this is mandatory.
- Try to establish a strategy of publication both for
 - general paper
 - working group specific papers.
- Ideally a general paper should give an overview of all activities by working groups.
- Publications of physics validation on specific topics can be utilized to publish a general validation paper.
- Probably the steering board should have the responsibility to establish the strategy.

Recommendations from G4 Internal Org. and Commu. Meeting

**The following are recommendations created in Geant4 Internal Organization and Communication Meeting
CERN, 10th - 14th July, 2006**

- **SB should take the major role in planning of publications – need to encourage or require publications in key areas**
- **To establish a team to promote publications and offer writing support. It also should provide assistance to push papers through the publication process, ensure planning and quality of papers, and targeting of the appropriate journals**
- **A Geant4 paper submitting to a refereed journal must be circulated to the collaboration at least two weeks prior to the submission.**
- **For a Geant4 paper for conference proceedings, the deadline is 1 week.**
- **Paper which contains physics results needs to be circulated well in advance so that confirmation and recalculation might be done if needed.**
- **Check and compare to publication rules of large experiment collaborations**