Geant4 Outreach

1. What is outreach?

2. How do we publicise ourselves?

3. Tutorials/lectures

4. Web-based initiatives

5. G4Logo

Alex Howard, ETH Zürich
Documentation Co-ordinator

What is outreach?

- My personal view:
  - Outreach is how we extend what we do to a broader audience
  - Seminars, lectures and tutorials
  - Publicity: news articles, web-pages, videos
- Up to the individual and very much a local group thing
- Should we have a consensus?
- What about the "Official" tag – does that mean a developer, endorsement, correct material?
- Equally there is a Geant4 "brand" - logo, web-pages, material

How do we publicise ourselves?

- Publications – as a collaboration, working, individuals within other contexts

- Talks, lectures, tutorials – many across multiple domains

- Personal contact – people come to us

- Web: home page, working group pages, documentation, now videos?

- Hypernews

- What else?

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Tutorials

- Between us we organise and participate in many Geant4 tutorials throughout the year

- If we're involved they're sometimes termed "official"

- We freely and happily share material

  - But only when asked ;-)

  - Often adding our own personal viewpoint/input

- In general it's a lot of work, some fun, but frequently only applicable to a small fraction of users/participants

- We're cheap – pay our expenses only and for sure we'll give a course...

  - c.f. I believe MCNP charge > $20k for a 5 day course

Some brief experience on tutorials (S. Incerti)

- Typically 2-3 days (not a whole week), main focus on medical physics or Geant4-DNA
- Students like the Geant4 Virtual Machine (even if this is not an official Geant4 development)
  - Proposed by IN2P3/CENBG since 2004
  - http://geant4.in2p3.fr/spip.php?rubrique8&lang=en
  - Easy to update (just download updated files for G4 patches or new releases)
  - Vmware based; easy to install on Windows or Mac laptops
- Alternance of talks and hands-ons on the virtual machine
- All hands-ons are based on exisiting G4 extended examples
- Good to have slides ready in advance, we see many students attending with a whole printed book of all slides
- Can be part of an official university cursus

L. Pandola

Geant4 courses from the LNS group

- Geant4 *beginner* courses given by the LNS-Catania group
  - Typically, three or four per year
  - **Alghero series** (June) since 2009 (40 students per year)
  - **Catania series** (October-November) since 2013 (40-50 students per year)
    - This year to be held in Belgrade (in collaboration with Sebastien)
- Well-tested format
  - One full week (30 hours)
  - 50-50 share between lectures and hands-on sessions
  - Rule-of-thumb: 10 students/lecturer
- Since this year, final examination with "international marks"

IV International Geant4 School

23-28 October 2016 *Belgrade (Serbia)*

XIII Seminar on Software for Nuclear, Subnuclear and Applied Physics

5-10 June 2016

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L. Pandola

Geant4 courses from the LNS group

- A "short" version of the course is also available
  - About 10 hours total
  - Same 50-50 share between lectures and hands-on
- **Installation policy** not stable during the last few years
  - Recently, we preferred to provide a ready-for-the-use VM (as IN2P3/CENBG)
  - Sometimes, shared pre-installed machine
    - Students login via ssh
  - In other cases, we supported local installations on students' laptops
- Exercises based on example `B03(a)` so far
- Plan for the future: revise the exercise suite by using a different approach, i.e. building a full application class-by-class, rather than using a ready-for-the-use example
  - Addresses feedback provided during our courses

S. Guatelli

Teaching Geant4 to undergraduate students

S. Guatelli, University of Wollongong, Wollongong, NSW, Australia

- Laboratory component developed for undergraduate students of the Medical Radiation Physics Degree, University of Wollongong, Wollongong, NSW, Australia

- Collaboration with the education department of the University of Wollongong

- Presented at the IEEE TALE 2012 Conference

IEEE TALE 2012
Hong Kong
20-23 August 2012

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enquiry@tale-conference.org

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IEEE International Conference on Teaching, Assessment and Learning for Engineering 2012 (TALE2012)

Keynote Speakers

Prof. Michael Lightner
IEEE Director and Vice President, Educational Activities,
Professor and Chair of Electrical, Computer, and Energy Engineering, University of Colorado, Boulder,
2006 IEEE President

Dr. Rob Reilly
President, IEEE Education Society,
Visiting Scientist, Center for Educational Computing Initiatives, MIT

Prof. Sorel Reisman
Past President (2011), IEEE Computer Society
Managing Director, MERLOT.ORG
California State University (CSU), Office of the Chancellor
Professor, Information Systems, CSU Fullerton

Date and Venue

20-23 August 2012, The Hong Kong Polytechnic University, Hong Kong

Theme

"Fostering Innovation and Excellence in Engineering Education"

Publications in Education:

- S. Guatelli, et al, 2012 IEEE International Conference on Teaching, Assessment and Learning for Engineering (TALE), pp: W2C-11,W2C-15

- S. Guatelli, et al, Journal of University Teaching & Learning Practice, 7(2), 2010.

- S. Guatelli, et al, "Transferring advanced physics research tools to education: how to teach simulation tools used in radiation physics research to university students", Proceeding records, International Technology, Education and Development Conference (INTED2010), Valencia, Spain, 8-10 March 2010.

S. Guatelli

Geant4 Schools in Wollongong
mainly addressed for medical radiation physics

- 1 week event (2011, 2013 and 2016): ~ 5 lecturers + 10 tutors (PhD students experienced with Geant4)

- 3 days school (lectures + hands-on labs) + 3 days workshop

- The workshop is mainly addressed to medical physics applications of Monte Carlo codes
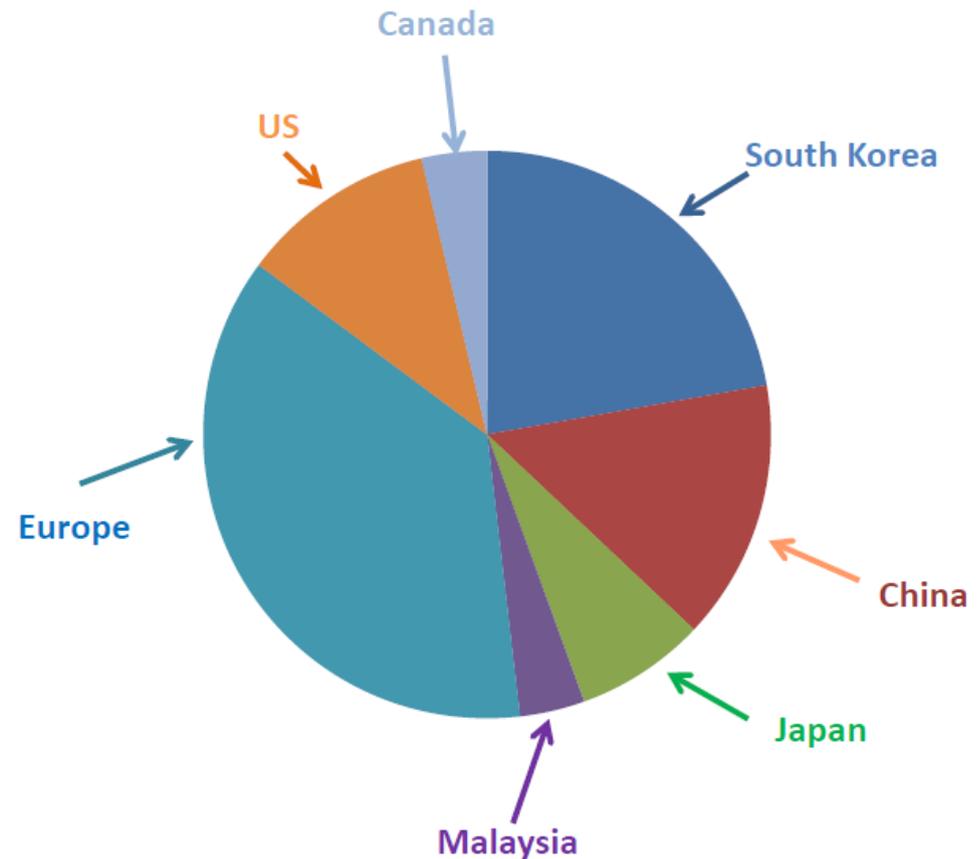
S. Guatelli
Comments

The event is growing

- April 2011: 40 participants, 12% international

- April 2013: 55 participants, 14% international

Both events with Geant4 school for beginners + MC Workshop

- April 2016: 80 participants, 37% international

Geant4 school for beginners and more experienced users + MC Workshop

International participation in 2016

S. Guatelli

Lessons learnt

- **Hands-on courses are the winners**
  - In 2016, the hands-on sessions were shaped specifically on what the attendees wanted to learn
  - More demanding preparation but more successful in terms of outcome

- **"Lectures" are more useful for more experienced Geant4 users**
  - Standard Geant4 lectures on the main components of the Toolkit
  - Beginners feel "intimidated"

From regular feedback forms

Web-based initiatives

- A number of videos have been produced over the years, recently efforts to aggregate this

- Should our web-pages/interaction be more up-to-date?

- Youtube, facebook, twitter, whatsnext etc....

- We're certainly not "à la mode", but these new fashions would require continual updating and maintenance to keep them current

- Is it worth it?
  - Do we already reach out to our desired user-base?

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Industrial Partners

- Geant4 is also used in industry:
  - ESA
  - Companies (Kromek, IBEX, unknowns...)
- Our licence allows this...

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Industrial Partners - Kromek

Introduction

- Kromek Group
    - Kromek is a UK radiation detection solutions Group
    - Provides digital colour x-ray and gamma ray detection and imaging
    - Products enable direct materials identification in the security screening, civil nuclear and medical imaging markets
- Modelling with Geant4
    - Alpha, beta, gamma and neutron simulations for detectors
    - Optical photon modelling for scintillators
    - Provide Geant4 Collaboration with windows support (used only in the development and debugging process)
    - Radioactive decay of many radionuclides
    - Insight into Physics processes and effects (i.e. True coincidence summing)
    - 3D visualisation

1

kromek

G4Logo

- Is it time to change our logo?

- Youtube requires a square logo

- Laurent had a few suggestions....

Discussion...