

*g4tools*

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# *g4tools : main ideas*

- g4tools is an automatic extraction of some code found in the softinex/inlib and namespaced “g4tools” for an embedding in Geant4.
- Pure header code. Highly portable (including iOS and Android). Easily embeddable (no “config.h” or specific build tool in the way).
- Strongly OO. No implicit (g) management.
- Thread safe (no writable statics).
- See <http://softinex.lal.in2p3.fr>

# *What's new (in one slide)*

- Handle **MPI** histos packing, unpacking.
- Writing/reading histos at csv format released.
- **Batch plotting** : a nice idea. First code in g4tools.  
Could be very useful for a “first glance” at the physics output of a batch.
- “usual work” to please Coverity and nightlies 😊

# *Batch graphics*

- Be able to produce a .ps containing some graphics (today plots) without having to tie to any graphics external libs (no X11, no GL).
- Done with g4tools/sg classes : it is a **scene graph manager**. Very flexible and powerful logic to handle graphics.
- It comes with its own zbuffer (then we can do batch 3D !). It is done in pure C/C++ by using CPU, then it would be too slow for interactive but for batch we (quite) don't care.

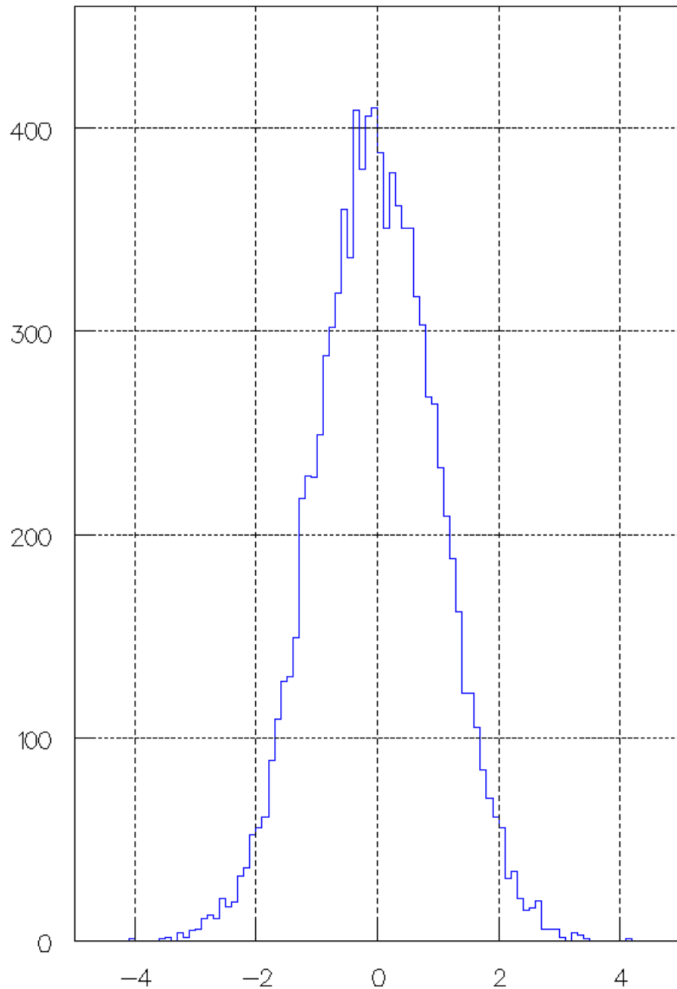
# *externals/freetype*

- Plotting needs the mastering of text. By default g4tools/sg comes with the “old Hershey HBOOK” fonts done in C. (Sufficient for a “first glance” at physics).
- But all is here to render fonts by using the nice **freetype2** lib (in fact a C “batch” graphics lib too !) and then reach straight high quality and nice looking plots in pure batch.
- We ask that Geant4 handles in its “externals” a version of freetype2 (and then avoid that users “forever” stumble in attaching freetype “elsewhere”).

# HBOOK/freetype

Random Gauss

Entries	10000
Mean	-0.0112485
RMS	1.00213



Random Gauss

Entries	10000
Mean	-0.0112485
RMS	1.00213

