



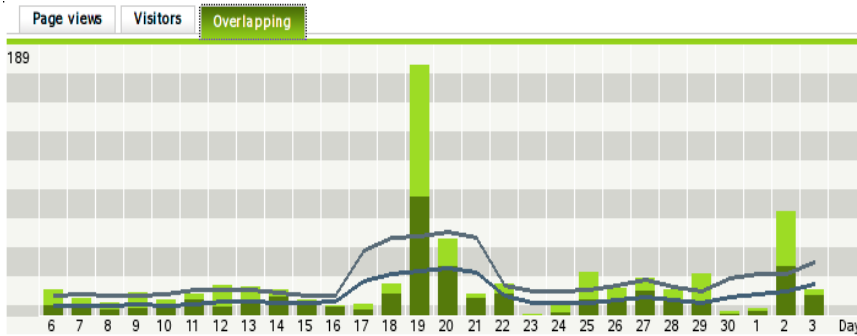
# flair for FLUKA

[Vasilis.Vlachoudis@cern.ch](mailto:Vasilis.Vlachoudis@cern.ch)  
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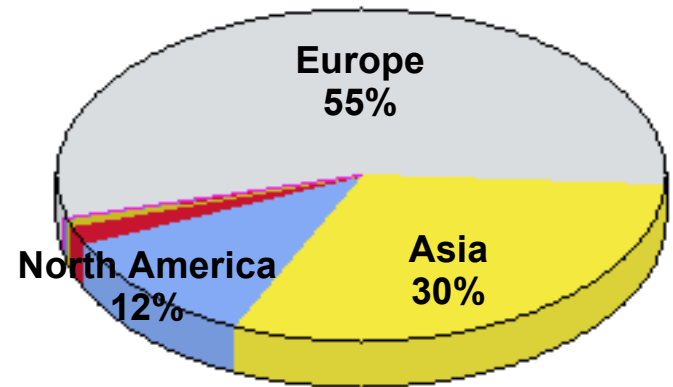
# Flair History

- Jan 2005 During the FLUKA course at Houston, first idea about a possible graphical interface
- Mar 2006 Pavia FLUKA course confirmed the need of such an interface
- Jun 2006** Start working on the conceptual design
- Nov 2006 Announcement at the CERN FLUKA users meeting
- Dec 2006 Announcement at the FLUKA collaboration meeting
- May 2007** **Introduction and use with success** at the FLUKA course at Houston. The program is quite evolved and counting **~50'000 lines of code.**
- Jun 2007 First public announcement (v0.5) at the FLUKA users list. **250 downloads in the first 24h!**
- Oct 2007 Similar number of downloads observed for all subsequent releases

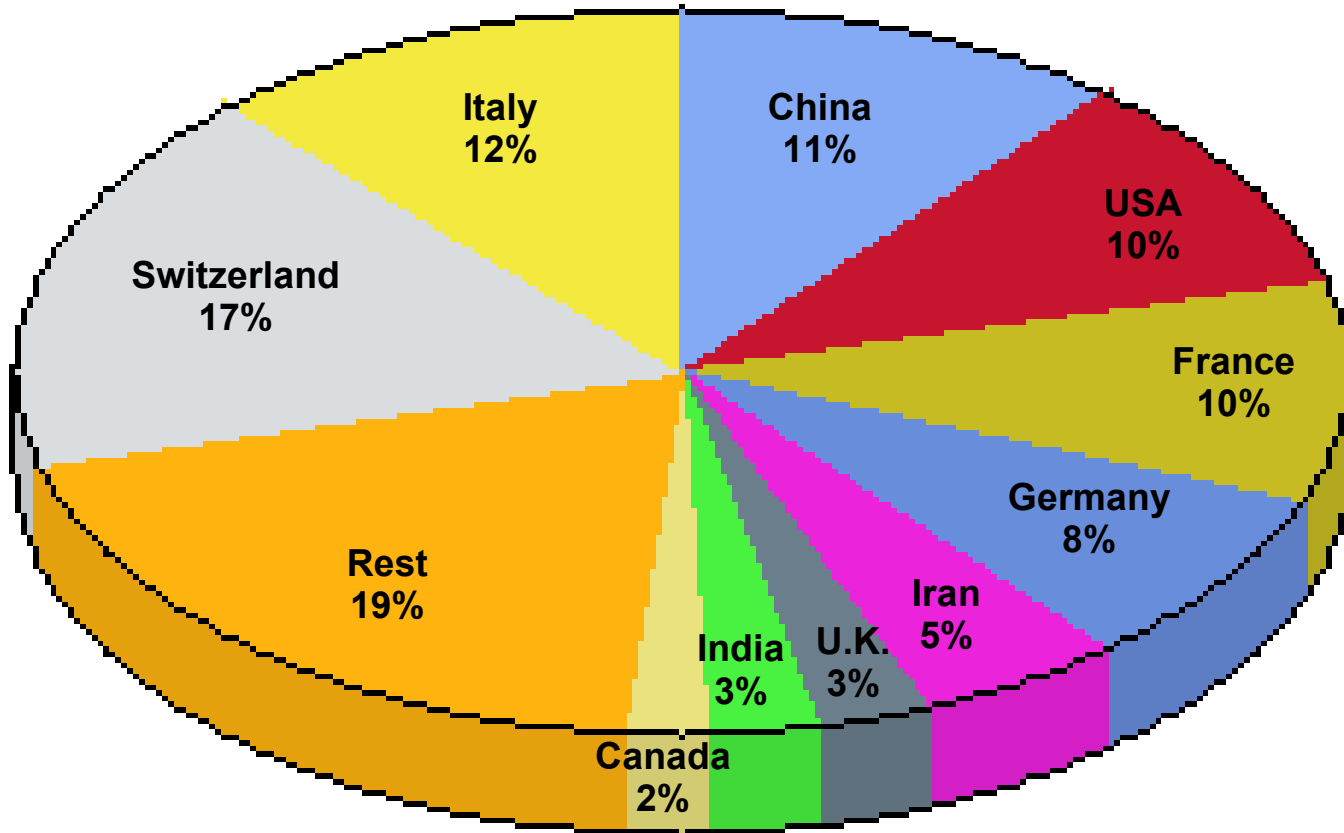
# Website statistics



flair 0.5 announced in  
FLUKA mailing list



# Website – Country of origin



# FLUKA Courses

- Flair was introduced with success in the FLUKA course of Houston and Legnaro 2007.
  - Proved to be stable enough even under the test of beginners
  - Reduced the number of technical problems (input file formatting, running, debugging etc.)
  - Helped in the learning of students (more concentrated on the simulation rather on technicalities)
  - It was helpful exercise to debug flair and check its robustness, but also to see students needs for extra features.
- **Concerns**
  - Forced the users on a slightly different organization than what they would have done on their own.
  - Correspondence between flair card layout and manual is not clear some times

# Features Added in 0.5 ... 6.3

- Folding of Cards
- Dialog to modify manually the contents of a card
- Manual has now history. TOC & search listboxes are unified
- Output viewer now contains a tree browser
- Region volumes added
- Checking the existence of the \$FLUPRO/fluka hp during startup
- Web checking of version-major, minor and release number
- Exporting input in MCNP format
- Plotting:
  - Labels for material/region/lattices
  - Palette schemes, CPD from color-bands replaced by Max value
  - Combined Magnetic field intensity and vector field.
  - Very primitive USRDUMP plots (source particles and trajectories)
- All cards now have a layout (last ones added: OPT-PROD, OPT-PROP, POLARIZA, MCSTHRESH)

# Folding of Cards

The screenshot displays the FLUKA FLAIR interface. The left sidebar shows a tree view of the input file structure, with the 'Primary' card under the 'Input' folder highlighted. The main window shows a list of cards, with the 'BEAM' and 'BEAMPOS' cards expanded to show their parameters. The 'BEAM' card is set to a proton beam with an energy of 20.0 GeV and a rectangular shape. The 'BEAMPOS' card is set to a position of (2.2632, -0.5, -10.0) with a positive direction. The 'START' card is set to 100.0 particles. The 'STOP' card is hidden. The status bar at the bottom shows the input file 'tutorial.inp', the execution directory, and the current card selection: Card:1-3 Filtered:6 Total:32.

**Fluka**

- Input
  - General
  - Primary**
  - Geometry
  - Media
  - Physics
  - Transport
  - Biasing
  - Scoring
  - Developers
  - Preprocessor
- Process
- Plot
- Database

----- TITLE ... DEFAULTS : 3 cards hidden -----

**BEAM** Beam: Energy ▼ E: 20.0 Part: PROTON ▼  
 $\Delta p$ : Gauss ▼  $\Delta p$ (FWHM): 0.082425  $\Delta \phi$ : Gauss ▼  $\Delta \phi$ : 1.7  
Shape: Rectangular ▼  $\Delta x$ :  $\Delta y$ : Weight: 1.0

**BEAMPOS** x: 2.2632 y: -0.5 z: -10.0  
cosx: -0.17365 cosy: 0.0 Dirz: POSITIVE ▼

----- GEOBEGIN ... RANDOMIZ : 25 cards hidden -----

**START** No.: 100.0 Report: default ▼ Time:

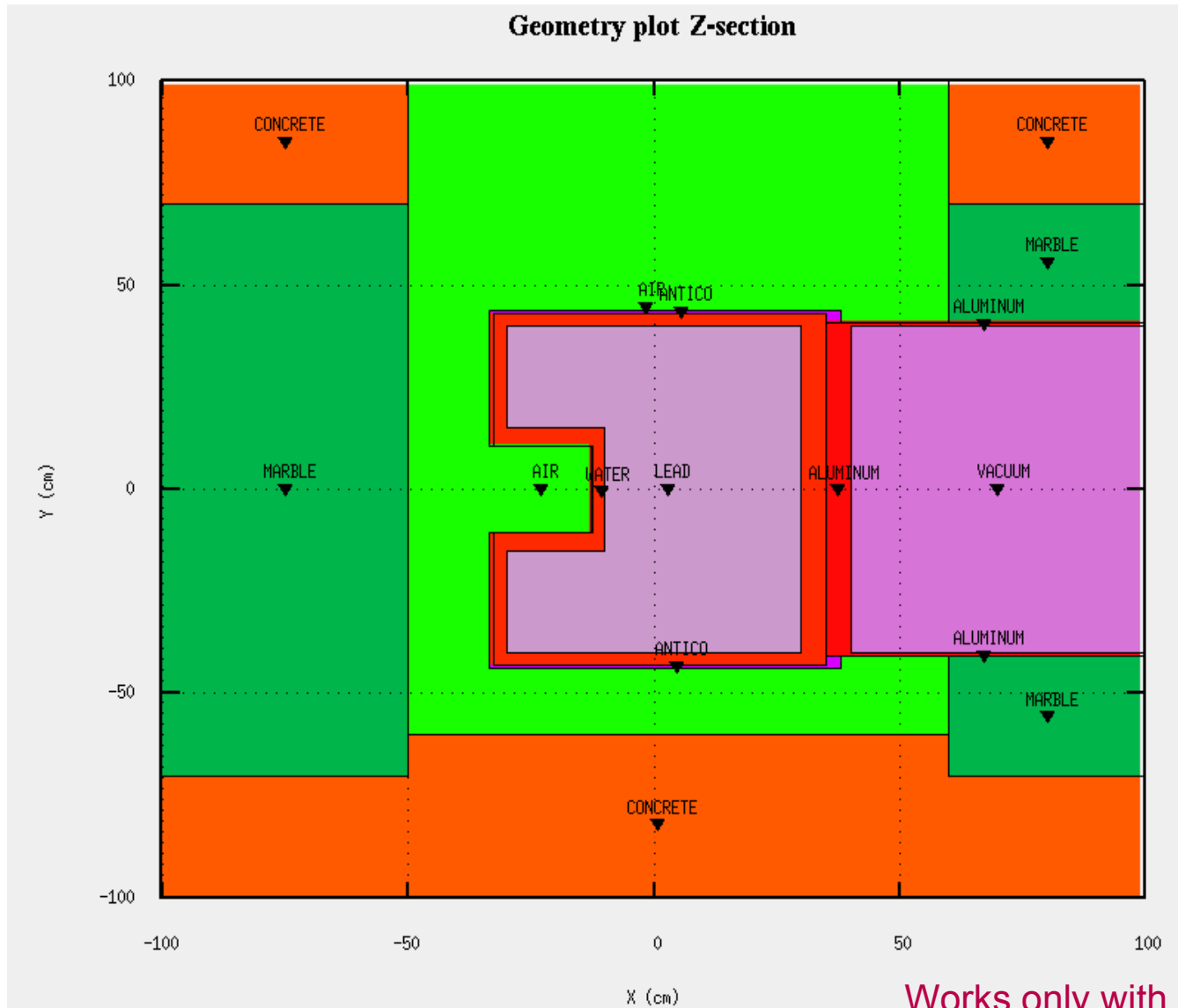
----- STOP : 1 card hidden -----

Inp: tutorial.inp Exe: Dir: /home/bnv/prg/physics/fluka/flair/examples Card:1-3 Filtered:6 Total:32





# Labels in geometry



Works only with gnuplot 4.2+

# Development Version 6.4

- Changed format of geometry debugging and plotting to FREE
- Modified Input class to keep the floating point precision to the max number of digits as it entered by the user.
- Multiple project support
- Working on undo/redo mechanism
- Added povray exporting
- ROT-DEFI with names and new scoring particles
- More flexible selection of cards
- Existing only CVS
- **Requires the new FLUKA release which is not available yet**

# Features to be added for V1.0

- **Project**
  - Project explorer/manager for exchanging info between projects
- **Input Editor**
  - Additional layer of “flair” cards that will allow the creation of dynamic input files e.g. Inline geometrical transformations, simple programming language, expression evaluation, vector operations etc..
  - Geometry manipulation (Transformations, CSG optimization etc)
  - Error checking on correlated information
  - MCNP importer, MARS & Geant-4 exporter
- **Manual**
  - Insert into FLUKA manual the correspondence of FLUKA whats with flair cards
- **Post Processing**
  - Re-binning or USRBINS
  - Maximum trace
- **Plotting:**
  - Information of Input File
  - Double differential quantities for USRBDX
  - 1D USRBIN plots
  - 3D Visualization via OpenGL or Ray Tracing