flair for FLUKA

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Development Version 0.6.4 (Release 0.7)

- Internal changes:
  - Modified Input class to keep the floating point precision to the max number of digits as it entered by the user. All numbers entered by the user are stored now as strings to avoid precision errors, due to rounding. Python by default truncates a number to 12 digits when it is converted to string.
  - Changed format of geometry for debugging and plotting to FREE. To allow ROT-DEFI cards to be specified with double precision
  - Customizable all external commands (rfluka, fff, us*suw ...)
  - When viewing a core dump, opens the debugger
  - Particles are now split in normal and scoring particles
  - Added support for the 260 groups (keeping also the 72 n-groups)
  - All new modifications in FLUKA cards are implemented also in flair (ROT-DEFI, LATTICE, ...)
- Existing only CVS
- Requires the new FLUKA release which is not available yet

Interface changes

- Multiple project support. User can open many flair windows to exchange information (copy/paste). For the moment only in input editing. It will be extended in the future for everything.

- Undo/redo mechanism in the input editor, to be completed and added also in the plot frames

- Geometrical transformation for selected bodies, including all optimizations when applicable

- New algorithm for finding the position of the label during geometry plotting to avoid overlapping labels

- In the Compilation frame, it scans input cards and proposing to copy the default user routines if they are requested in the input.

- ROT-DEFI with names and new scoring particles

- More flexible selection of cards

- Several input card error checks have been added

Importers/Exporters

- Povray exporting of geometry
- Working on a MCNP/X importer
- MARS exporter

Future additions

- 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..
  - Error checking on correlated information
  - MCNP importer, 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
  - DETECT and USERDUMP cards