GooFit exercises

- **In this session we will try out GooFit user-level code for some relatively simple fits, involving convolutions and maps.**
- **Points to note:**
  - `ExpThrustFunctor` **does not behave like a decay; it does not go to zero at negative lifetimes. Multiply by a** `StepThrustFunctor` **to get decay-like behaviour.**
  - `ConvolutionThrustFunctor` **by default does the convolution integral from -10 to 10, in steps of 0.01. You can change this with the** `setIntegrationConstants` **method.**
  - `MappedThrustFunctor` **implements a function of this form:**

$$F(x,y) = \begin{cases} A(y) & \text{if } x \in [x_0, x_1) \\ B(y) & \text{if } x \in [x_1, x_2) \\ \quad \ldots & \\ Z(y) & \text{if } x \in [x_{N-1}, x_N] \end{cases}$$

where x and y may be the same variable. Its constructor takes a list of functions of y, and a 'map' function of x which returns the index of the y function to use. Note that it does not have to return an integer, `MappedThrustFunctor` **will round off fractional values to the closest int.**

- **Compiling and running:**

```
qsub -I -l nodes=1:ppn=12:gpus=2 -l walltime=01:30:00
# Wait a minute for job to start
cd $TMPDIR
module load cuda
cp -r $HOME/goofitcourse/* .
cd release_16Jan2013
# Substitute a different ROOT install if you like.
export ROOTSYS=/nfs/10/ucn1122/root_53006/
export LD_LIBRARY_PATH=${LD_LIBRARY_PATH}:./rootstuff/:${ROOTSYS}/lib/
# Can compile rootstuff on login node if you prefer.
cd rootstuff
gmake
cd ..
cp ../exercise4*.cu .
gmake exercise4a
./exercise4a
gmake exercise4b
./exercise4b
```