

An Interactive session

```
lxplus> athena.py -i AnalysisSkeleton_jobOptions.py -l FATAL
athena> include ("PyAnalysisCore/InitPyAnalysisCore.py")
athena> theApp.initialize()                      initialization
athena> theApp.algorithms()                     list all algorithms
athena> AnalysisSkeleton.properties()          list alg properties
athena> AnalysisSkeleton.ElectronEtCut = 15000.0  reset cut
athena> AnalysisSkeleton.properties()
athena> theApp.run(20)                           run 20 events
athena> histSvc = theApp.histSvc()              get histo service
athena> histSvc.dump()                         list all histograms
athena> Mee = histSvc.retrieve('/stat/Electron/Mee')
athena> Mee.mean()
athena> Mee.rms()
```

An Interactive session-continue

```
athena> from AidaProxy import *
athena> from rootPlotter2 import *
athena> plotter = RootPlotter()
athena> plotter.plot (Mee)
athena>
plot("ParticleJetContainer#ParticleJetContainer","$x.pt(),nEvent=5)
athena> ntupleSvc = theApp.ntupleSvc()
Athena> ...
(do not try the Fitter yet: it has some problem - I will
inform you when it is fixed)
athena> fitter = Fitter("Chi2","lcg_minuit")
athena> fitParams = std.vector(double)()
athena> fitParams.push_back(150.0)
athena> fitParams.push_back(80000.0)
athena> fitParams.push_back(5000.0)
```

An Interactive Session-continue

```
athena> gaussian = Function("G")
athena> gaussian.setParameters(fitParams)
athena> fitResult = fitter.fit(Mee,gaussian)
athena> if fitResult == None:
athena>     raise "Single gaussian chi2 fit failed"
athena> parameterNames =
    fitResult.fittedParameterNames()
athena> parameters = fitResult.fittedParameters()
athena> errors = fitResult.errors()
athena> for i in range(0,len(par)):
athena>     print parameterNames[i] + " = " +
    str(parameters[i]) + " +/- " + str(errors[i])
athena> plotter.plot(gaussian, "S")
Athena> ...
athena> theApp.exit()
lxplus>
```

An Interactive Session - continue

- You can put your interactive commands in a file and execute it on the Athena prompt
 - The file MyAnalysis.py contains:

```
from AidaProxy import *
from rootPlotter2 import *
Import ROOT
theApp.initialize()
```

- Then, on the interactive ATHENA prompt:
`athena> execfile ("MyAnalysis.py")`

An Interactive Session - continue

- It is recommended that you start your analysis an ATHENA algorithm such as the AnalysisSkeleton, where you implement some pre-defined histograms and NTuples
- In an interactive session, you can access those histograms and NTuples. Further, you can also define and fill new histograms on the fly
- It is also possible to call C++ class from the ATHENA prompt
- In an interactive session, you still have access to the full ROOT machinery through PyROOT.