

GammaLib - Bug #1477

Log parabola model pull distribution gives wrong fitted prefactor

06/19/2015 08:57 AM - Knödseder Jürgen

Status:	Closed	Start date:	06/19/2015
Priority:	High	Due date:	
Assigned To:	Knödseder Jürgen	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	1.0.0		

Description

Pull distributions with the following logparabola XML file give a prefactor that is almost a factor two to large:

```
<?xml version="1.0" standalone="no"?>
<source_library title="source library">
  <source name="Crab" type="PointSource">
    <spectrum type="LogParabola">
      <parameter name="Prefactor" scale="1e-16" value="5.878" min="1e-07" max="1000.0" free="1"/>
      <parameter name="Index" scale="-1" value="2.325" min="0.0" max="+5.0" free="1"/>
      <parameter name="Curvature" scale="-1" value="0.074" min="0.01" max="1000.0" free="1"/>
      <parameter name="Scale" scale="1e6" value="1.0" min="0.01" max="1000.0" free="0"/>
    </spectrum>
    <spatialModel type="SkyDirFunction">
      <parameter free="0" max="360" min="-360" name="RA" scale="1" value="83.6331" />
      <parameter free="0" max="90" min="-90" name="DEC" scale="1" value="22.0145" />
    </spatialModel>
  </source>
  <source name="Background model" type="CTAIfBackground" instrument="CTA">
    <spectrum type="PowerLaw">
      <parameter name="Prefactor" scale="1.0" value="1.0" min="1e-3" max="1e3" free="1"/>
      <parameter name="Index" scale="1.0" value="0.0" min="-5.0" max="+5.0" free="1"/>
      <parameter name="Scale" scale="1e6" value="1.0" min="0.01" max="1000.0" free="0"/>
    </spectrum>
  </source>
</source_library>
```

History

#1 - 06/19/2015 09:10 AM - Knödseder Jürgen

- Status changed from New to Feedback

- % Done changed from 0 to 100

The problem was introduced when doing #1466. A fixed number of iterations were used for flux integration in the log parabola model which led to a high inaccuracy in the result. I switched back to setting the integration precision.

#2 - 06/20/2015 08:41 AM - Knödseder Jürgen

- Status changed from Feedback to Closed

Check by generating a pull distribution that this is now fixed.