

GammaLib - Action #2308

Add GCTABackground integration method

02/08/2018 09:14 PM - Knödlseeder Jürgen

Status:	Closed	Start date:	02/08/2018
Priority:	Normal	Due date:	
Assigned To:	Knödlseeder Jürgen	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	1.6.0		

Description

Add a method to GCTABackground that computes the expected event rate in units of counts / steradians / seconds within a given energy interval. The proposed interface for the method is

```
double rate_ebin(const GCTAInstDir& dir, const GEnergy& emin, const GEnergy& emax);
```

The method is pure virtual and implemented at the level of the derived classes.

History

#1 - 02/08/2018 09:16 PM - Knödlseeder Jürgen

- Status changed from New to In Progress

- % Done changed from 0 to 10

Add the method

```
gammalib::plaw_integral(double&, double&, double&, double&)
```

to the GMath module that analytically integrates a power law.

#2 - 02/08/2018 10:18 PM - Knödlseeder Jürgen

Add the

```
double atan2(const double& y, const double& x)
```

method to compute the arc tangens in radians.

In addition, add

```
GCTAInstDir::theta()
```

```
GCTAInstDir::phi()
```

methods that return the offset and azimuth angles in instrument coordinates in radians.

#3 - 02/09/2018 11:56 PM - Knödseder Jürgen

- % Done changed from 10 to 80

A GCTABackground::rate_ebin() method was added to the abstract interface and implemented for GCTABackgroundPerfTable and GCTABackground3D. Unit tests were added to the C++ test class that test both classes and in particular the new rate_ebin() methods. Results look satisfactory.

#4 - 02/10/2018 12:54 AM - Knödseder Jürgen

- Target version set to 1.6.0

#5 - 02/10/2018 05:20 PM - Knödseder Jürgen

- Status changed from In Progress to Closed

- % Done changed from 80 to 100

Merged into devel.