

GammaLib - Bug #722

Formulas in the GModelRadialDisk docstrings are incorrect

01/30/2013 04:35 PM - Deil Christoph

Status:	Closed	Start date:	01/30/2013
Priority:	Low	Due date:	
Assigned To:	Deil Christoph	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	00-08-00		
Description			
The doxygen formula for eval of the GModelRadialDisk is incorrect: http://gammalib.sourceforge.net/doxygen/classGModelRadialDisk.html#a3878d8615b796bac184d6cc9454e759d			
The code is OK: https://github.com/gammalib/gammalib/blob/devel/src/model/GModelRadialDisk.cpp#L244			
The doxygen formula and code for the normalization of the disk model match: http://gammalib.sourceforge.net/doxygen/classGModelRadialDisk.html#aa5add6be40765e26443f03de0a23576a and seem to be correct: test/example_radial_models.py			
Why though, I think the normalization should be $1 / (\pi \times \text{radius}^2)$ instead?			
This is a simple change, I could make a pull request tonight, but I would like to be sure about the correct formula for the normalization first ...			

History

#1 - 01/30/2013 04:44 PM - Knödlseider Jürgen

Everything is done in spherical coordinates in GammaLib, so that the model applies even to very large disks (e.g. Fermi bubbles). I think the code is correct for spherical coordinates, but please check.

See http://en.wikipedia.org/wiki/Solid_angle section "Solid angles for common objects".

#2 - 01/30/2013 09:10 PM - Deil Christoph

- Status changed from New to Pull request

- Priority changed from Normal to Low

The code is OK, the formula in the doxygen comment for eval() was not.

Please pull this one commit:

<https://github.com/cdeil/gammalib/commit/42a87fff635f02447c45f28d8607da97da234e38>

https://github.com/cdeil/gammalib/tree/disk_spatial_model_doc_fix

#3 - 01/31/2013 04:50 PM - Knödlseider Jürgen

- Status changed from Pull request to Closed

- % Done changed from 0 to 100

Modification has been integrated and merged in the devel branch.