
NAME

quef - apply an energy dependent weighting factor to rays

SYNOPSIS

quef parameters

DESCRIPTION

quef processes a **bpipe** format stream of rays, applying a multiplicative factor to a ray's weight based upon the ray's energy. The factors are interpolated from a user provided lookup table.

Interpolation within the lookup table is done using either a linear or logarithmic algorithm, determined by the **xtype** and **ytype** parameters. Rays whose energies are outside of the table have their weights set to zero.

The lookup table must be an RDB formatted file with at least three columns. One column provides the multiplicative factor; the other two describe the energy range over which the factor is valid. The interpolation schemes assume that the tabulated factors are associated with the midpoints of the listed ranges. The values of the factor at the bin edges are determined via linear interpolation between the values at the centers of neighboring bins.

OPTIONS AND ARGUMENTS

quef uses an IRAF-compatible parameter interface.

input=file

The name of the input ray stream. If it is the string `stdin`, **queff** will read rays from the standard input stream.

output=file

The name of the output ray stream. If it is the string `stdout`, **queff** will write rays to the standard output stream.

lookuptable=file

The name of the file containing the quantum efficiency data. This file is an RDB database with at least three columns consisting of beginning energy, ending energy, and the quantum efficiency.

begin=string

The name of the column in the lookup table which contains the lower bound energies for the bins.

end=string

The name of the column in the lookup table which contains the upper bound energies for the bins.

qe=string

The name of the column in the lookup table which contains the quantum efficiency for the energy at the midpoint of the bin.

xtype=lin|log

This specifies the type of tabular interpolation to be performed on the energy. Valid values are `lin` or `log`.

ytype=lin|log

This specifies the type of tabular interpolation to be performed on the multiplicative factors. Valid values are `lin` or `log`.

`qecclip=boolean`

If true, QE values are clipped to the values specified in **qemin** and **qemax**

`qemin=float`

The minimum QE value. Interpolated values are clipped to this if **qecclip** is true.

`qemax=float`

The maximum QE value. Interpolated values are clipped to this if **qecclip** is true.

`killzerowt=boolean`

If set to `yes` rays whose energies fall outside of the ranges specified in the lookup table are not written to the output ray stream.

`verbose=boolean`

Be a little less quiet.

`version=boolean`

If `yes` or `1` version information is output, after which the program will exit.

`debug=list of flags`

This parameter takes a comma delimited list of debug flags. The available flags are:

`dump-qe-all`

Dump all of the QE tables

`dump-qe-raw`

Dump the QE table as read from the input file.

`dump-qe-interp`

Dump the initial interpolated QE table

`dump-qe-xfrm`

Dump the transformed QE table

`help=boolean`

If `yes` or `1` usage information is output, after which the program will exit

COPYRIGHT & LICENSE

Copyright 2006 Smithsonian Astrophysical Observatory

This software is released under the GNU General Public License. You may find a copy at

<http://www.fsf.org/copyleft/gpl.html>

AUTHOR

Dan Nguyen

Diab Jerius