Synopsis

Blackbody as a function of energy. Integration ON.

Description

Blackbody emission calculated as a function of energy using the expression:

\[ f(E) = A \left( E^2 / \exp\left[ E / kT \right] - 1 \right) , \]

where \( E \) is the photon energy, and \( kT \) is the blackbody temperature (expressed in the same units as the photon energy). The amplitude \( A \) is related to the ratio of source radius to distance:

\[ A = \left( \frac{2\pi}{c^2 h^3} \right) \left( \frac{R}{d} \right)^2 = 9.884 \times 10^{31} \left( \frac{R}{d} \right)^2 , \]

with Planck's constant \( h \) specified in keV−s and the speed of light \( c \) specified in cm/s, and with \( R \) and \( d \) representing the radius of, and distance to, the source respectively. If \( E/kT < 10^{-4} \), \( f(E) = AEkT \), while if \( E/kT > 60 \), \( f(E) = 0 \).

BBODY Parameters

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>space</td>
<td>0: energy</td>
</tr>
<tr>
<td>2</td>
<td>kT</td>
<td>temperature kT (in energy units)</td>
</tr>
<tr>
<td>3</td>
<td>ampl</td>
<td>amplitude A</td>
</tr>
</tbody>
</table>

See "ahelp integrate" for further information about source model integration.

Bugs

See the Sherpa bug pages online for an up-to-date listing of known bugs.

See Also

sherpa