
Subject: MPFITFUN error -- only reading the first data value

Posted by [graham kerr](#) on Tue, 31 Mar 2015 22:45:02 GMT

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Hello everyone,

I am trying to use mpfitfun to fit data observed at multiple wavelengths to a blackbody function, with temperature as the only variable; so I'm trying to find the best fit temperature.

My function is called planck_fit_sot.pro, and is below. When I use mpfitfun the output has clearly only tried to fit the first data point. For a few test runs where I simulated blackbody intensities at multiple wavelengths (100 in total), the fitting routine returns the temperature that I set the first data point to. Also, yfit has only one value (the first), with all the rest '0'.

Does anyone know what (presumably silly) mistake I've made here, and why mpfitfun is not using all the data to fit the function?

cheers,
Graham

mpfitfun procedure where wave_rgb & data_rgb are input and temp_range and start_temp are included as optional input :-

```
if n_elements(start_temp) eq 0 then start_temp = double(6000.0)
parinfo = {value:0.0, fixed:0, limited:[0,0], limits:[0.0,0.0]}
  parinfo[0].value = start_temp
  parinfo[0].fixed = 0
  if n_elements(temp_range) eq 0 then begin
    parinfo[0].limited(*) = 0
  endif else begin
    parinfo[0].limited(*) = 1
    parinfo[0].limits[0] = temp_range[0]
    parinfo[0].limits[1] = temp_range[1]
  endelse

fit_fn = mpfitfun('planck_fit_sot', wave_rgb, data_rgb, err, $
  parinfo = parinfo, double = double,$
  maxiter = 2000, bestnorm = bestnorm,$
  yfit = yfit, perror = perror, dof = dof,$
  status = status, errmsg=errmsg)
```

planck_fit_sot.pro :-

FUNCTION planck_fit_sot, wave, temp

;Some constants

```
cc = 2.99792458d10 ;cm/s
hh = 6.62606957d-27 ;erg s
kb = 1.3806488d-16 ;erg/K
```

```
wave_cm = wave/1.e8 ;cm
```

```
bb_fn = dblarr(n_elements(wave))
```

```
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.....  DEFINE THE FUNCTION  .....
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```

```
;2*h*c^2.0
const1 = double(2*hh*cc*cc)
```

```
;h*c/k
const2 = double(hh*cc/kb)/wave_cm
```

```
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```

```
bb_fn = const1 / ( wave_cm^5.0 * ( exp( const2]/temp)-1. ) )
```

```
bb_fn = bb_fn*1.d-8 ;ergs/s/cm^2/sr/Ang
```

```
bb_fn_watts = bb_fn/1.e7 ;W/cm^2/sr/Ang
```

```
.....
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```

```
return, bb_fn_watts
```

```
end
```

