
Subject: MPFITFUN Problem

Posted by [Sean\[1\]](#) on Fri, 22 Jul 2005 21:55:32 GMT

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Hello

I am having a problem with MPFITFUN. The code executes okay, but one of the parameters that I put into the program does not ever change...

I know this is alot of text, but here's the output I receive on the screen....

```
IDL> imodfit
Iter   1  CHI-SQUARE =    16.926937      DOF = 3
      P(0) =      0.0250000
      P(1) =      75.0000
Iter   2  CHI-SQUARE =    16.857964      DOF = 3
      P(0) =      0.0250000
      P(1) =      76.9480
Iter   3  CHI-SQUARE =    16.855946      DOF = 3
      P(0) =      0.0250000
      P(1) =      77.0617
Iter   4  CHI-SQUARE =    16.855669      DOF = 3
      P(0) =      0.0250000
      P(1) =      77.0102
Iter   5  CHI-SQUARE =    16.855644      DOF = 3
      P(0) =      0.0250000
      P(1) =      77.0369
Iter   6  CHI-SQUARE =    16.854858      DOF = 3
      P(0) =      0.0250000
      P(1) =      77.0236
Iter   7  CHI-SQUARE =    16.854755      DOF = 3
      P(0) =      0.0250000
      P(1) =      77.0235
Iter   7  CHI-SQUARE =    16.854755      DOF = 3
      P(0) =      0.0250000
      P(1) =      77.0235
```

% Program caused arithmetic error: Floating underflow

IDL>

As you can see, the parameter P(0) does not change. ...If I change the order of the parameters, or the value of P(0), that value is still unaffected! I have included the code I use below. As is evident, P(0) IS used in the user-supplied function 'eval_pp2fvsimod', and it does affect the output of that function. Any thoughts... anyone?

Thanks,
Sean

PRO imodfit

```
;Take the imod test data and fit to it to try and find the modulation
;conversion
;restore, '~/windows/CLHCalibrations/imodtest/imod123.sav'
```

```
pp2ftestshort = [0.000411136, 0.000483014, 0.000574490, 0.000626735,
0.000630612]
imodtestshort = [.5, 1., 1.5, 2, 2.5]
```

```
;need to scale the pp2f values to rcalb = 10.5. ...value used was 21
pp2ftestshort = pp2ftestshort * 21. / 10.5
```

```
weights = .2*pp2ftestshort
vmrguess = 75.
omegaguess = .025d ;guess for the conversion, cm-1 / mA
params = [omegaguess, vmrguess]
result = mpfitfun('EVAL_pp2fvsimod', imodtestshort, pp2ftestshort,
weights, params, yfit=fitval, perr=perr)
```

END

function eval_pp2fvsimod, x,a

```
pmod = a[0] * x * 29979.
ihm = 2 ;ihm=2 means second harmonic
sr = 1. ;scan range, in cm-1
res = 10. ;resolution, in MHz
npts = sr * 29979.246 / res ;number of points in frequency and
transmission arrays
f1 = 7306.252 ;start frequency of scan, in cm-1
dlt = res / 29979.246
frq = f1 + findgen(npts)*dlt ;frequency array, in cm -1
pressure = 312. / 1013.
```

```
make_line, pressure, a[1], frq, trans=t3
t3 = reform(t3)
```

```
pp2freturn = fltarr(n_elements(x))
FOR i = 0, n_elements(x)-1 DO begin
    der2f, frq, t3, npts, res, ihm, pmod[i], t2, pratio, zlobe
    pp2freturn[i] = pratio
ENDFOR
```

```
return, pp2freturn
```

END
