Subject: Re: IDL Math Expert, clarification
Posted by Brad Gom on Thu, 21 Aug 1997 07:00:00 GMT
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Ok, thanks to all of you who have helped so far...
if anyone is still interrested, I'll define the problem a little more clearly.

The data corresponds to a V-I curve of a cryogenic bolometer (temperature sensitive resistor)
By measuring the voltage across the detector as a function of current flowing across it, you can get information about its power loading.

From bolometer theory comes the power dissipated by the element:
P=G*(T*(T/t'-1))
where G is the thermal conductance, T is the bolometer temperature and t' is the bath temperature. (other terms have been simplified)

The bolometer is a semiconducter, thus its theoretical resistance is:
R=r'*exp((tg/T)^.5)
where r' and tg are material dependant parameters, and T is the bolometer temperature.

Now Ohms law gives V=sqrt(P*R) and I=sqrt(P/R)

T, the bolometer temperature, is a hidden parameter.

My problem is that I have a set of V vs. I data, but my theoretical initial estimates of the parameters G,t',r',and tg are not very trustworthy. Manipulating the 4 parameters by hand is too tedious. What I need is a procedure that can fit a curve defined by two parametric equations.

I have received a couple of good suggestions that I am followiong up on, but if anyone has another solution please feel free...

Thanx,

Brad Gom