
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:
 $P = G \cdot (T \cdot (T/t' - 1))$
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 semiconductor, thus its theoretical resistance is:
 $R = r' \cdot \exp((tg/T)^{.5})$
where r' and tg are material dependant parameters, and T is the
bolometer temperature.

Now Ohms law gives $V = \sqrt{P \cdot R}$ 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
