Subject: Re: poly_fit for less number of points
Posted by Heinz Stege on Mon, 06 May 2013 18:02:07 GMT
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On Sat, 4 May 2013 07:02:57 -0700 (PDT), sid wrote:

> ... But can you please suggest me is there any other fit available to fit this kind of dataset. Because I want to get a smoothed fit.

I'm not sure, what you mean with "smoothed fit". I fully agree with Craig, that a polynomial fit of degree 2 is very smooth.

Putting a more detailed look onto your data, I see that the function has to be vary asymmetric to match the data. I guess you tried degree 4 or higher and don't like that wiggles, which are typical for polynomal fits of higher degree.

It would be very helpful to know, if you are looking for a least square fit (which compensates uncertainties within the y values) or a function which interpolates the given points (and goes exactly through the given points).

In any case I think, that it is very risky to draw an arbitrary curve through the points on the right side of the diagram. It would be very helpful, to have a model explaining y vs. x. Can you tell something about the origin of the data?

A "quick and dirty" solution may be a hyperbolic function like
  y(t) = (p0 + p1*t + p2*t^2) / (t - q0)
where p0, p1, p2 and q0 are the (fit-)constants and t=x-mean(x).

Such a non-linear function can be fitted by IDL's curvefit() or Craig Markwardt's mpfit(). If you want to see the result for your example before doing the fitting stuff, here are my results:
  q0=0.311793, p0=-0.0241749, p1=0.0906013, p2=-0.0602339

But again, this is very speculative. This is one function, that fits your data. And there may be other functions with other results! Furthermore I would expect, that you have other data examples, where the function above does not work!

Heinz