Subject: Airy function implementation?
Posted by Rob.Dimeo on Wed, 30 Oct 2013 21:04:24 GMT
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Hi,

Before I do this myself, does anyone have an implementation of the Airy function in IDL? (Yes, I am aware that the additional advanced math & stats module has the IMSL implementation of it but I don't have that).

Thanks,

Rob

Subject: Re: Airy function implementation?
Posted by wlandsman on Wed, 30 Oct 2013 23:50:11 GMT
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The StarFinder package has a small program airy_pattern.pro to compute the Airy function via a Bessel function. http://www.bo.astro.it/StarFinder/paper6.htm#The%20IDL%20cod e

On Wednesday, October 30, 2013 5:04:24 PM UTC-4, Rob Dimeo wrote:
> Hi,
>
>
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> Before I do this myself, does anyone have an implementation of the Airy function in IDL? (Yes, I am aware that the additional advanced math & stats module has the IMSL implementation of it but I don't have that).
>
>
>
> Thanks,
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>
>
> Rob

Subject: Re: Airy function implementation?
Posted by Rob.Dimeo on Thu, 31 Oct 2013 17:01:38 GMT
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On Wednesday, October 30, 2013 7:50:11 PM UTC-4, wlandsman wrote:
> The StarFinder package has a small program airy_pattern.pro to compute the Airy function via a Bessel function. http://www.bo.astro.it/StarFinder/paper6.htm#The%20IDL%20cod e

Thanks. Based on the code I found in the Starfinder program, that is an Airy pattern (http://en.wikipedia.org/wiki/Airy_disk) which is different from an Airy function (http://en.wikipedia.org/wiki/Airy_function). Sorry...I should have been precise.

Rob

Subject: Re: Airy function implementation?
Posted by Lajos Foldy on Thu, 31 Oct 2013 17:28:54 GMT
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On Wednesday, October 30, 2013 10:04:24 PM UTC+1, Rob Dimeo wrote:
> Hi,
>
> Before I do this myself, does anyone have an implementation of the Airy function in IDL? (Yes, I am aware that the additional advanced math & stats module has the IMSL implementation of it but I don't have that).
>
> Thanks,
> Rob

You don't have IMSL, but you do have GSL (in Linux 64 bit):

```
function ai, x
return, call_external('/usr/lib64/libgsl.so', 'gsl_sf_airy_Ai', double(x[0]), 1l, /all_value, /d_value, /auto_glue)
end


pro test_ai   ; Ai(x) in [-5,5]
x=dindgen(1001)/100-5
y=x
for j=0,1000 do y[j]=ai(x[j])
plot, y
end
```

Feel free to add error checking :-)

regards,
Lajos
