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Subject: improvement of DPM

Posted by [Aida Galoyan](#) on Tue, 07 Feb 2012 08:44:59 GMT

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Hi all,

I have introduced some changes in generator DPM according to our last discussions with Luminosity and Tracking groups.

In particular, I have improved ratio between cross sections: elastic, inelastic, total.

In the new external packages, fortran compiler "g77" is removed, "gfortran" is used now. Therefore, I have changed the file /DpmEvtGen/common.mk to have a possibility to compile (make or gmake) and run DPMGen within DpmEvtGen directory, as earlier it was possible.

At the translation from "gfortran" to "g77", many warnings are appeared. So, I inserted some improvements in fortran codes to reduce the warnings.

With regards,  
Aida

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Subject: Re: improvement of DPM

Posted by [Mohammad Al-Turany](#) on Wed, 08 Feb 2012 11:14:40 GMT

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Hallo Aida,

After your changes the DpmEvtGen was not compiling anymore:

<http://cdash.gsi.de/CDash/viewUpdate.php?buildid=823>

this because you change the name of a subroutine from:

```
subroutine DPM_GEN(Pluto, Seed)
```

To:

```
subroutine DPMGEN(Pluto, Seed)
```

Was there any reason for that? I change it back now!

regards,

Mohammad

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Subject: Re: improvement of DPM  
Posted by [Felix Boehmer](#) on Wed, 08 Feb 2012 12:07:35 GMT  
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Hi Mohammad,

I can very dimly remember some discussion about problems of gfortran with underscores when ubuntu switched from g77 to gfortran ... maybe that's it?

Cheers

Felix

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Subject: Re: improvement of DPM  
Posted by [Mohammad Al-Turany](#) on Wed, 08 Feb 2012 13:38:39 GMT  
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Hi Felix,

This has to do with underscore at the end of name not in the middle.

Cheers,

Mohammad

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Subject: Re: improvement of DPM  
Posted by [Aida Galoyan](#) on Wed, 08 Feb 2012 21:17:39 GMT  
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Hi Mohammad,

Felix is right.

I replaced DPM\_GEN on DPMGEN, because when we called subroutine dpm\_gen() from DpmEvtGen/main.cc or from PndDpmDirect.cxx (created by you), it was needed to put 2 underscores at the end: dpm\_gen\_\_().

How I remember, it can lead to problems, when we transfer from "g77" to "gfortran". Therefore, I replace dpm\_gen(x,x) on dpmgen(x,x) and now compile without any errors.

When we use subroutine dpmgen(x,x) instead dpm\_gen(x,x), it is need to change call dpm\_gen\_\_(x,x) to dpmgen\_(x,x) (without middle underscore and second underscore at the end) in the file pgenerators/PndDpmDirect.cxx. I did it in the file DpmEvtGen/main.cc .

I think, in the case, everything will be normal.

Aida

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Subject: Re: improvement of DPM

Posted by [Aida Galoyan](#) on Fri, 02 Mar 2012 14:59:36 GMT

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Hi all,

I have changed parameterizations of hadron elastic and total cross-sections in DPM generator according to our last paper: "Antinucleus-nucleus cross sections implemented in Geant4" Phys.Lett.B705:235-239,2011.

Aida

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Subject: Re: improvement of DPM

Posted by [Aida Galoyan](#) on Mon, 04 Jun 2012 14:22:34 GMT

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Hi all,

I have improved pi+pi- mass distribution in DPM. For this, quark mass distribution is improved, and production of f2 meson is added for the first time in DPM generator.

I attached fig., where pi+pi- mass distributions for pbar-p annihilation events at  $P_{lab}=9.1$  GeV/c are calculated by new version of DPM, model FTF in GEANT4 and UrQMD+SMM model.

As you can see, calculations by DPM reproduce exp. data given by points better than other models.

Aida

### File Attachments

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1) [an\\_DPMFTF.gif](#), downloaded 299 times

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