Subject: Pion off Nuclei [quasi-free]
Posted by Ingo Froehlich on Mon, 16 Apr 2012 14:39:53 GMT
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Just a macro which adds the quasi-free (pi- + p) reaction to Pluto:

```
{

   //Add our quasi-free composite:
   makeStaticData()->AddParticle(14009, "pi- + p",0.938272+0.139570);
   //Creates just a symbolic link:
   makeStaticData()->AddAlias("pi- + p","pi-+p");

   //Executes the fermi plugin which adds also nuclei:
   makeDistributionManager()->Exec("nucleus_fermi");

   //Add a new composite particle (target_id*1000 * beam_id)
   //N.B. that "nucleus_fermi" has already added the 12C (with id=614)
   makeStaticData()->AddParticle(614009,"pi- + 12C",11.174862+0.139570);
   //Creates again a symbolic link:
   makeStaticData()->AddAlias("pi- + 12C","pi-+12C");

   //adds a decay by using the "pi- + 12C" particle as created above:
   makeStaticData()->AddDecay(-1, "pi- + 12C -> (pi- + p) + 11B (quasi-free)","pi- + 12C","pi- +
p,11B", 1.0 );

   //This is the fermi model (contributed by M. Dieterle and L. Witthauer, Basel):
   PFermiMomentumGA * pmodel = new PFermiMomentumGA("pi-p_in_12C@pi- +
12C_to_pi- + p_11B", "Quasi-free particle production <nucleus_fermi>",-1);
   pmodel->Add("q,parent");
   pmodel->Add("pi-,grandparent,beam");
   pmodel->Add("12C,grandparent,target");
   pmodel->Add("11B,daughter,spectator");
   pmodel->Add("q,daughter,composite");
   pmodel->Add("p,granddaughter,participant");
   pmodel->Add("pi-,granddaughter,p2");
   makeDistributionManager()->Add(pmodel);

   //This is our reaction, in this case just a quasi-free elastic reaction:
   PReaction *Reac = new PReaction ("_P1=3.5","pi-","12C","(pi- p) pi- p (11B)","filename");

   TH2F * histo2 = new TH2F ("histo2","Rap. vs. Pt",50,-1.5,3.5, 50,0,1.5);
   Reac->Do(histo2,"foreach(pi-); _x = [pi-]->Rapidity(); _y=[pi-]->Pt(); ");

   Reac->Print();
   Reac->loop(1000);  // Number of events

   histo2->Draw("colz");

}
```

The nucleus_fermi plugin supports already gamma and proton beams - I think in the future I

will add the pion beam as well, but at the moment the macro above should do the job (it needs some adaptions of course to other cases like pi+ + n)

For completeness, this is the result:

File Attachments

1) c1.png, downloaded 755 times