



Tercer Taller de Cómputo de la Colaboración MexNICa

Dra. Lucina Gabriela Espinoza Beltrán¹, Dra. I. Maldonado², Dra. I. Domínguez², Dra. Ma. E. Tejeda-Yeomans^{3,4}

¹ Benemerita Universidad Autónoma de Puebla, ² Facultad de Ciencias Físico Matemáticas, Universidad Autónoma de Sinaloa, ³ Facultad de Ciencias - CUICBAS, Universidad de Colima, ⁴ Departamento de Física, Universidad de Sonora

Transporte en el detector: UrQMD en MPDroot

- Crear un directorio de trabajo y copiar los archivos de mpdroot al directorio

```
cp /NICA/MPDroot/mpdroot/macro/mpd/runMC.C workdir/
```

```
cp /NICA/MPDroot/mpdroot/macro/mpd/mpdloadlibs.C workdir/
```

```
cp /NICA/MPDroot/mpdroot/macro/mpd/geometry_stage1.C workdir/
```

- Copiar el archivo generado con UrQMD

```
cp /TuDirectorioGeneradorURQMD/test.f14 workdir/
```

runMC.C con eventos de UrQMD

Editar runMC.C:

- Incluir macros locales:

```
#include "mpdloadlibs.C"
```

```
#include "geometry_stage1.C"
```

- Definir el MC

```
#define URQMD
```

- Definir archivo de entrada, de salida y número de eventos

```
void runMC(TString inFile = "test.f14", TString outFile = "evetest.root", Int_t nStartEvent = 0,  
          Int_t nEvents = 10,
```

```
          Bool_t flag_store_FairRadLenPoint = kFALSE, Int_t FieldSw itcher = 0)
```

- \$root runMC.C

Corremos runMC.C con eventos de UrQMD

```
GNU nano 4.8 runMC.C
root@gabriela: /home/gabriela/NeICa/MPDroot/simulations/Toller3/transporte_UrQMD
#include <iostream>
using namespace std;
#endiff

R__ADD_INCLUDE_PATH($VMCHWORKDIR)
#include "mpdloadlibs.c"
#include "geometry_stage1.c"
//#include "macro/mpd/geometry_v2.c"

#define URQMD // Choose generator: URQMD WHIRL FLUID PART ION BOX HSD LAQGSM HADGEN
#define GEANT3 // Choose: GEANT3 GEANT4

// inFile - input file with generator data, default: auau.09gev.mbias.98k.ftn14
// nStartEvent - for compatibility, any number
// nEvents - number of events to transport, default: 1
// outFile - output file with MC data, default: evetest.root
// flag_store_FairRadLenPoint
// FieldSwitcher: 0 - corresponds to the ConstantField (0, 0, 0) KG (It is used by default); 1 - corresponds to the FieldMap ($VMCHWORKDIR/input/B-field)
void runMC(TString inFile = "test.f14", TString outFile = "evetest.root", Int_t nStartEvent = 0, Int_t nEvents = 10,
           Bool_t flag_store_FairRadLenPoint = kFALSE, Int_t FieldSwitcher = 0)
{
    TStopwatch timer;
    timer.Start();
    gDebug = 0;

    FairRunSim* fRun = new FairRunSim();
    // Choose the Geant Navigation System
#ifdef GEANT3
    fRun->SetName("TGeant3");
#else
    fRun->SetName("TGeant4");
#endiff

    geometry_stage1(fRun); // load mpd geometry
    //geometry_v2(fRun); // load mpd geometry

    Ver ayuda  Guardar  Buscar  Cortar Texto  Justificar  Posición  Deshacer  Marcar texto  A llave
    Salir  Leer fich.  Reemplazar  Pegar  Ortografía  Ir a linea  Rehacer  Copiar  Buscar atrás

```



Encender y apagar detectores: geometry_stage1.C

```
root@gabriela:/home/gabriela/NICA/MPDroot/Taller3/Introduccion          geometry_stage1.C
GNU nano 4.8
Void geometry_stage1(FairRunSim *fRun)
{
    // Set Material file Name
    fRun->SetMaterials("media.geo");

    // Create and add detectors
    //-----
    FairModule *Cave= new FairCave("CAVE");
    Cave->SetGeometryFileName("cave.geo");
    fRun->AddModule(Cave);

    FairModule *Pipe= new FairPipe("PIPE");
    Pipe->SetGeometryFileName("pipe.geo");
    fRun->AddModule(Pipe);

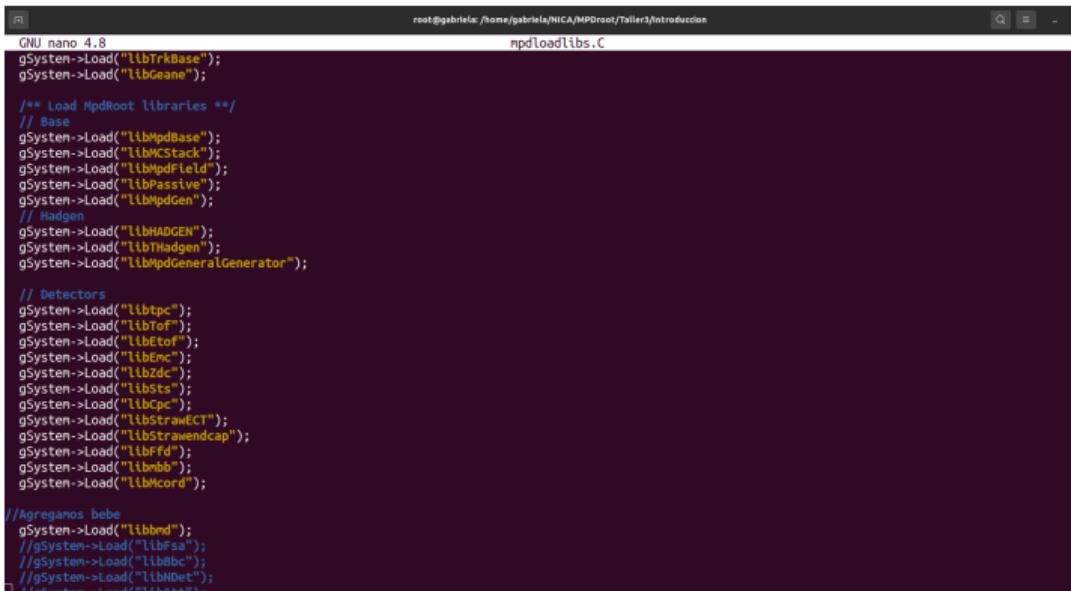
    FairModule *Magnet= new FairMagnet("MAGNET");
    Magnet->SetGeometryFileName("magnet_v5.root");
    fRun->AddModule(Magnet);

    FairDetector *Ffd = new MpdFfd("FFD",kTRUE );
    Ffd->SetGeometryFileName("ffd_L180cm_v1_0.geo");
    // Ffd->SetGeometryFileName("ffd.geo");
    fRun->AddModule(Ffd);

    /*
    FairDetector *Tpc = new TpcDetector("TPC", kTRUE);
    Tpc->SetGeometryFileName("tpc_v8.root");
    fRun->AddModule(Tpc);

    FairDetector *Tof= new MpdTof("TOF", kTRUE );
    Tof->SetGeometryFileName("tof_v8.root");
    fRun->AddModule(Tof);
}
```

Encender y apagar detectores: mpdloadlibs.C



The screenshot shows a terminal window titled "GNU nano 4.8" with the command "mpdloadlibs.C" entered at the top. The text inside the editor is a C code snippet that demonstrates how to load various libraries for detector simulation. The code includes sections for base libraries, Hadgen libraries, and specific detector libraries like TPC, TOF, EMC, BDC, BSTS, CTPC, Straw ECT, Straw Endcap, BFD, BBC, BBB, and MCord. It also includes commented-out sections for BBD and BBSA libraries.

```
GNU nano 4.8                                     mpdloadlibs.C
gSystem->Load("libTrkBase");
gSystem->Load("libGeane");

/** Load MpDRoot libraries */
// Base
gSystem->Load("libMpDBase");
gSystem->Load("libMCStack");
gSystem->Load("libMpDFeld");
gSystem->Load("libPassive");
gSystem->Load("libMpDGen");
// Hadgen
gSystem->Load("libHadGEN");
gSystem->Load("libTHadgen");
gSystem->Load("libMpDGeneralGenerator");

// Detectors
gSystem->Load("libtpc");
gSystem->Load("libtof");
gSystem->Load("libteto");
gSystem->Load("libemc");
gSystem->Load("libbdc");
gSystem->Load("libbsts");
gSystem->Load("libcpc");
gSystem->Load("libstrawECT");
gSystem->Load("libstrawendcap");
gSystem->Load("libbfd");
gSystem->Load("libbbc");
gSystem->Load("libbbb");
gSystem->Load("libmcord");

//Agregamos bebe
gSystem->Load("libbwd");
//gSystem->Load("libbsa");
//gSystem->Load("libbbc");
//gSystem->Load("libbdt");
//gSystem->Load("libccs");
```