

## Hands on Parallel World with Marker

The base directory of this hands on is `/home/g4user/work/medical/marker`

You need to change the command path in following slides if you want to try in other directory.

### 1. prepare tutorial source

download source code (Galet\_ParallelWorld\_Marker.tgz) and place in  
`/home/g4user/work/medical/marker`

```
> cd ~/work/medical/marker
```

```
> tar zxvf Galet_ParallelWorld_Marker.tgz
```

```
>
```

```
> mkdir Galet-v11-MedEx-Galet-v11-MedEx-build
```

```
> mkdir Galet-v11-MedEx-Galet-v11-MedEx-install
```

```
> cd Galet-v11-MedEx-Galet-v11-MedEx-build
```

```
> cmake -DCMAKE_INSTALL_PREFIX=../Galet-v11-MedEx-Galet-v11-MedEx-install ¥  
../Galet-v11-MedEx-Galet-v11-MedEx
```

```
> make
```

```
> make install
```

## Hands on Parallel World with Marker

The base directory of this hands on is `/home/g4user/work/medical/marker`

You need to change the command path in following slides if you want to try in other directory.

### 2. prepare run

```
> cd ~/work/medical/marker/Galet-vll-MedEx-Galet-vll-MedEx-install
> mkdir run
> cd ~/work/medical/marker/Galet-vll-MedEx-Galet-vll-MedEx-install/run
> cp ~/work/medical/marker/Galet-vll-MedEx-Galet-vll-MedEx/*mac .
```

This sentence is needed at the end of `phys.mac` to use parallel world

```
#####
# ParallelWorld Physics  parallelWorldName:s Layeredmass:b
#####
/Galet/physics/pwProcess paraWorld true
#
```

## Hands on Parallel World with Marker

The base directory of this hands on is `/home/g4user/work/medical/marker`

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### 3. hands on

compile

```
> cd /home/g4user/work/medical/marker/Galet-v11-MedEx-Galet-v11-MedEx-build  
> make  
> make install
```

run directory

```
> cd ~/work/medical/marker/Galet-v11-MedEx-Galet-v11-MedEx-install/run
```

run

```
> ../bin/Galet
```

or

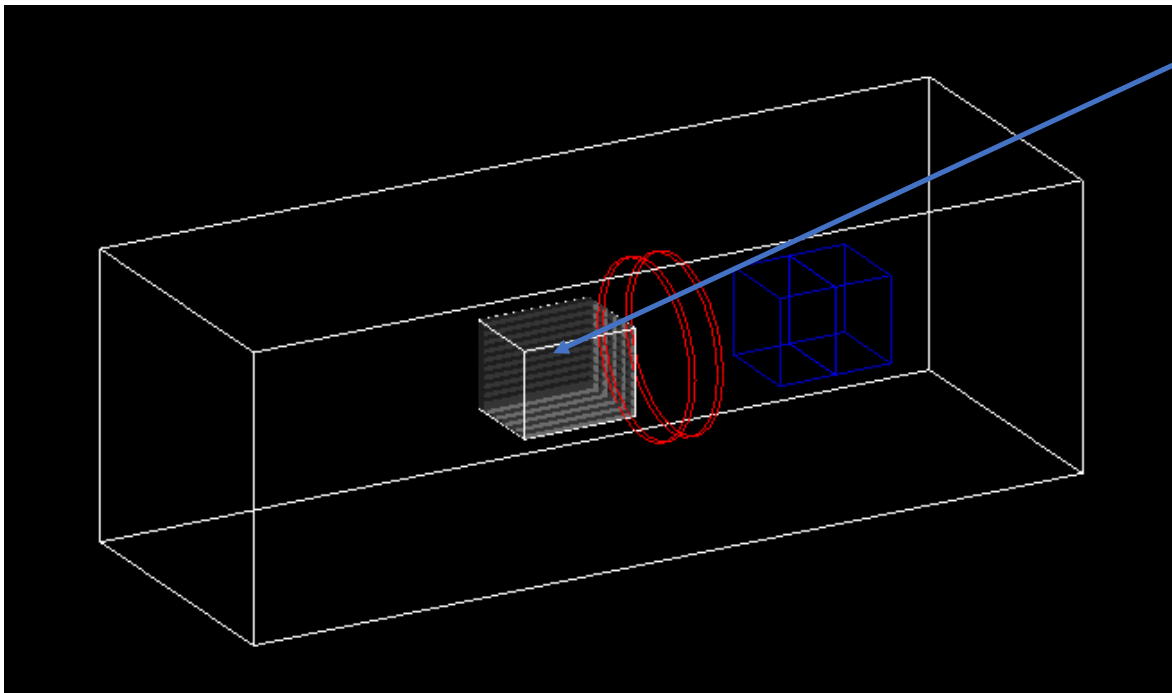
```
> ../bin/Galet -m run0.mac
```

## Hands on Parallel World with Marker

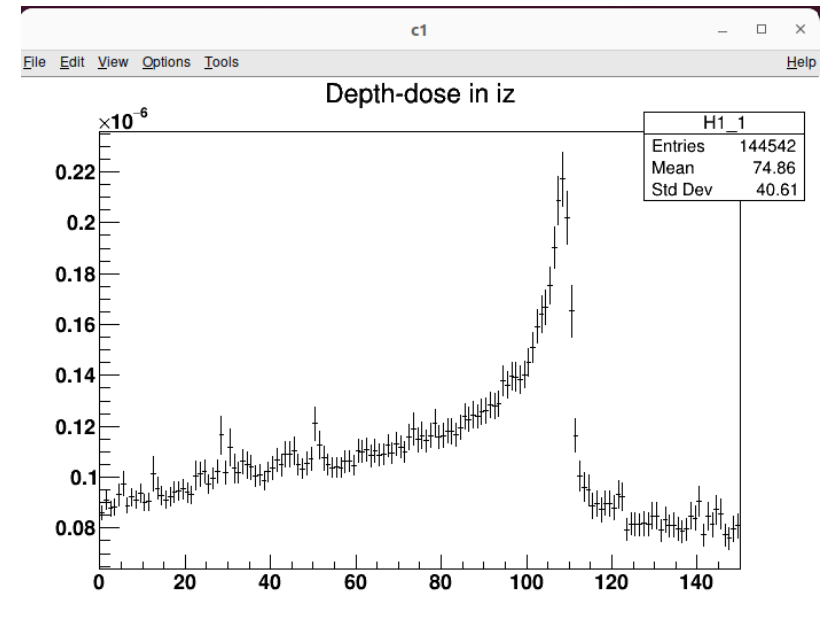
The base directory of this hands on is [/home/g4user/work/medical/marker](#)

You need to change the command path in following slides if you want to try in other directory.

This hands on placed the phantom in mass geometry and gold marker(=0.75mm) is placed in parallel world.



There are no marker in the viewer.



The marker is too small to see in the depth dose curve

a. change the marker size and see the depth dose.

## Hands on Parallel World with Marker

The base directory of this hands on is </home/g4user/work/medical/marker>

You need to change the command path in following slides if you want to try in other directory.

ParallelWorldConstruction.cxx      L65

```
//
```

```
// parallel world placement
```

```
//
```

```
// Gold marker
```

```
G4VSolid* GoldMarkerSolid = new G4Sphere("GoldMarker",0.*mm, 3.0*mm, 0, twopi, 0, pi );
```

```
G4LogicalVolume* GoldMarkerLogical = new G4LogicalVolume(GoldMarkerSolid,mat,"GoldMarkerLV");
```

```
new G4PVPlacement(NULL,G4ThreeVector(0.0*cm,0.,0.),GoldMarkerLogical,
```

```
    "GoldMarkerPhys",worldLogical,false,0);
```

## Hands on Parallel World with Marker

The base directory of this hands on is `/home/g4user/work/medical/marker`

You need to change the command path in following slides if you want to try in other directory.

compile

```
> cd /home/g4user/work/medical/marker/Galet-v11-MedEx-Galet-v11-MedEx-build
```

```
> make
```

```
> make install
```

goto run directory

```
> cd ~/work/medical/marker/Galet-v11-MedEx-Galet-v11-MedEx-install/run
```

edit run0.mac

```
    /run/beamOn 1        /run/beamOn 1000
```

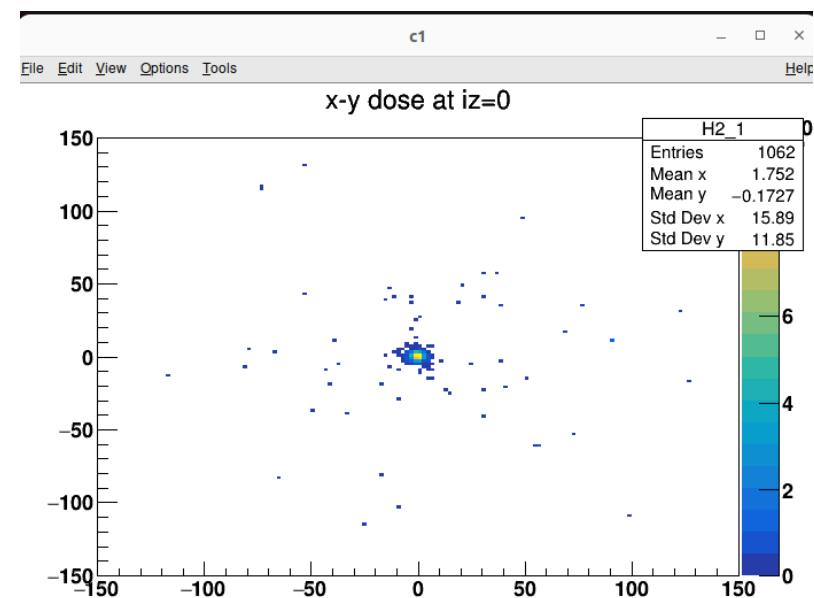
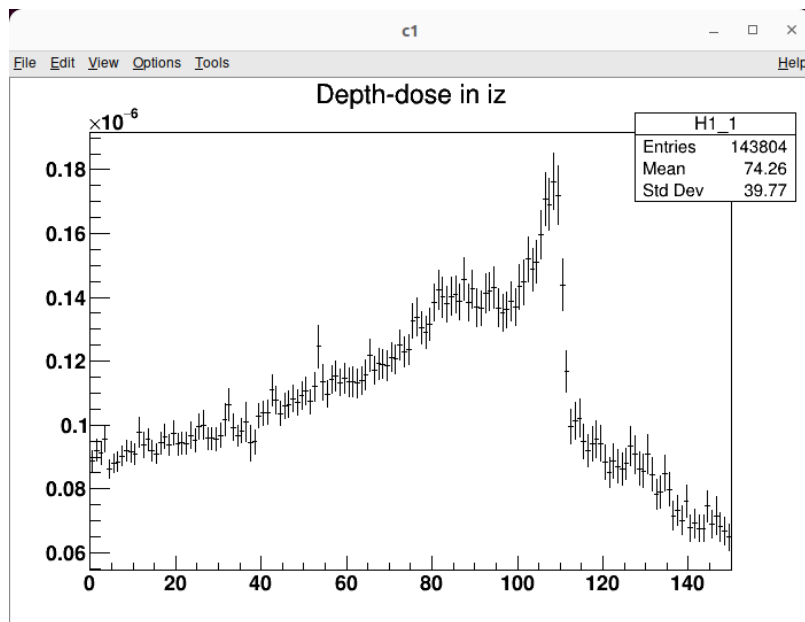
run

```
> ../bin/Galet -m run0.mac
```

## Hands on Parallel World with Marker

The base directory of this hands on is [/home/g4user/work/medical/marker](#)

You need to change the command path in following slides if you want to try in other directory.



## Hands on Parallel World with Score

The base directory of this hands on is [/home/g4user/work/medical/score](#)

You need to change the command path in following slides if you want to try in other directory.

### 1. prepare tutorial source

download source code (Galet\_ParallelWorld\_Score.tgz) and place in  
/home/g4user/work/medical/score

```
> cd ~/work/medical/score
> tar zxvf Galet_MagneticField_Marker.tgz
>
> mkdir Galet-v11-MedEx-Galet-v11-MedEx-build
> mkdir Galet-v11-MedEx-Galet-v11-MedEx-install
> cd Galet-v11-MedEx-Galet-v11-MedEx-build
> cmake -DCMAKE_INSTALL_PREFIX=../Galet-v11-MedEx-Galet-v11-MedEx-install ¥
../Galet-v11-MedEx-Galet-v11-MedEx
> make
> make install
```



## Hands on Parallel World with Score

The base directory of this hands on is `/home/g4user/work/medical/score`

You need to change the command path in following slides if you want to try in other directory.

### 2. prepare run

```
> cd ~/work/medical/score/Galet-vll-MedEx-Galet-vll-MedEx-install
> mkdir run
> cd ~/work/medical/score/Galet-vll-MedEx-Galet-vll-MedEx-install/run
> cp ~/work/medical/score/Galet-vll-MedEx-Galet-vll-MedEx/*mac .
```

This sentence is needed at the end of phys.mac to use parallel world

```
#####
# ParallelWorld Physics  parallelWorldName:s Layeredmass:b
#####
/Galet/physics/pwProcess paraWorld true
#
```

## Hands on Parallel World with Score

The base directory of this hands on is [/home/g4user/work/medical/score](#)

You need to change the command path in following slides if you want to try in other directory.

### 3. hands on

compile

```
> cd /home/g4user/work/medical/score/Galet-v11-MedEx-Galet-v11-MedEx-build  
> make  
> make install
```

run directory

```
> cd ~/work/medical/score/Galet-v11-MedEx-Galet-v11-MedEx-install/run
```

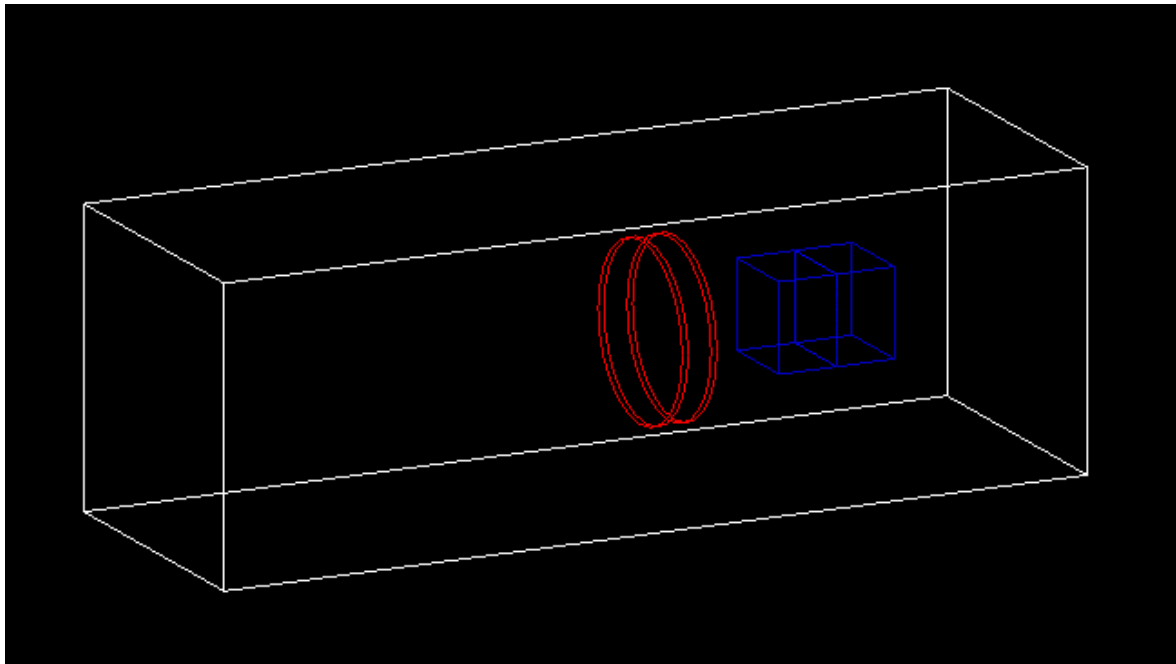
run

```
> ../bin/Galet
```

## Hands on Parallel World with Score

The base directory of this hands on is `/home/g4user/work/medical/score`

You need to change the command path in following slides if you want to try in other directory.



Default. There are no scorer in the viewer

This hands on placed the phantom in the parallel geometry.

a. see the scored result

## Hands on Parallel World with Score

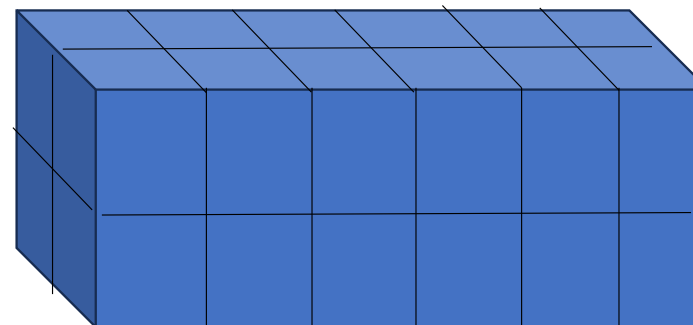
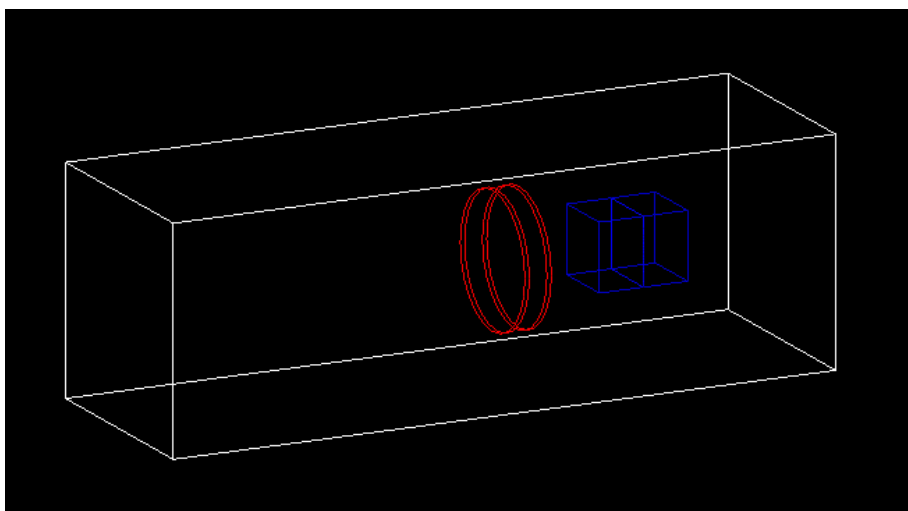
The base directory of this hands on is [/home/g4user/work/medical/score](#)

You need to change the command path in following slides if you want to try in other directory.

ParallelWorldConstruction.cxx L85

```
//  
// Homogeneous Water Phantom  
//  
G4double dx=50.0*cm; G4double dy=50.0*cm; G4double dz=150.0*cm;  
G4int nx=10; G4int ny=10; G4int nz=300;
```

same as the world size



## Hands on Parallel World with Score

The base directory of this hands on is `/home/g4user/work/medical/score`

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compile

```
> cd /home/g4user/work/medical/marker/Galet-v11-MedEx-Galet-v11-MedEx-build
```

```
> make
```

```
> make install
```

goto run directory

```
> cd ~/work/medical/marker/Galet-v11-MedEx-Galet-v11-MedEx-install/run
```

edit run0.mac

```
    /run/beamOn 1          /run/beamOn 10000
```

run

```
> ../bin/Galet -m run0.mac
```

## Hands on Parallel World with Score

The base directory of this hands on is [/home/g4user/work/medical/score](#)

You need to change the command path in following slides if you want to try in other directory.

