

# A Different Way to Run MUSUN

A.N. Villano

University of Minnesota

# Previously

- MUSUN a Fortran 77 code which could be compiled with “g77”
- Run on the command line and produced files of at-depth muons which had the correct energy and angular distributions
- Could use RANLUX parameters to “pick up” where a previous muon generation run had “left off”

# Library Call

- MUSUN code for initialization put into a single function
- MUSUN seed initialization put into another function
- MUSUN single-muon generation put into a third function
- All functions compiled with “g77” and put into a static library which is c-callable

# Usage of Library Call

- Link the static library to C code:

```
$gcc -o <somecode> somecode.cpp -L /path/to/  
musunlib -lcmusun
```

- Use by calling `initseed_` function with random seed and cavern specs, then call `musungetmuon_` to get the specs of a particular muon

Functions:

`musungetmuon_(part,energy,x,y,z,px,py,pz)`

`Initseed_(seed,xlen,ylen,zlen,rthick)`