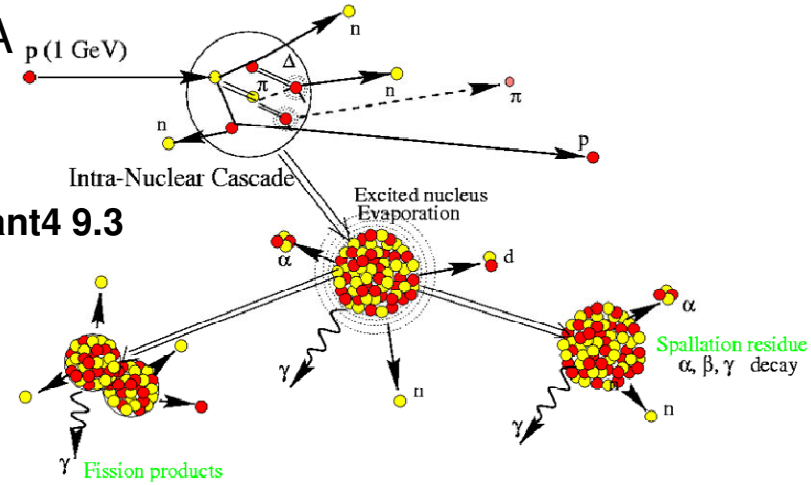
Parallel Session II: Model development and comparison with experiments (M.Kosov)

1. Pekka Kaitaniemi, Developments in INCL/ABLA



Physics list QGSP_INCL_ABLA

Carbon projectile support in INCL will be available for Geant4 9.3

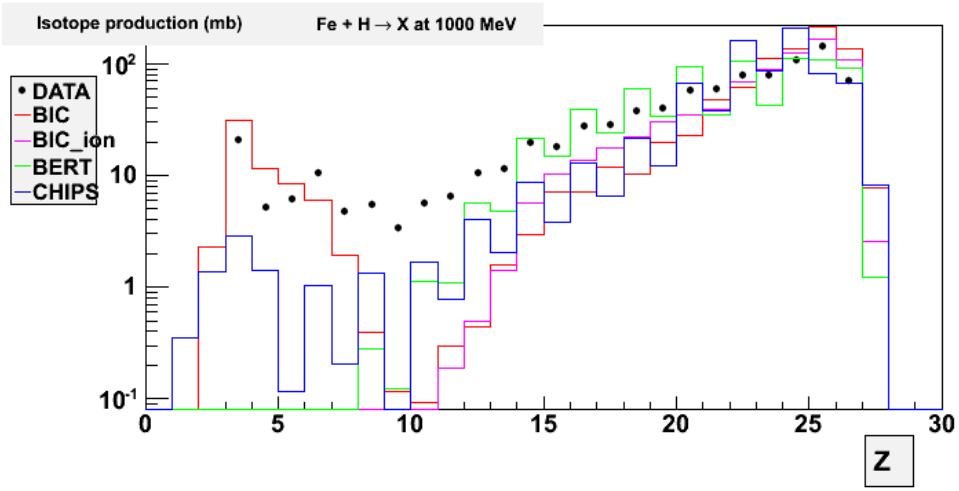
Strong focus on improving the light ion support

Produce a simplified cascade model prototype with the new code early 2010. The code should be able to do more realistic physics by next summer.

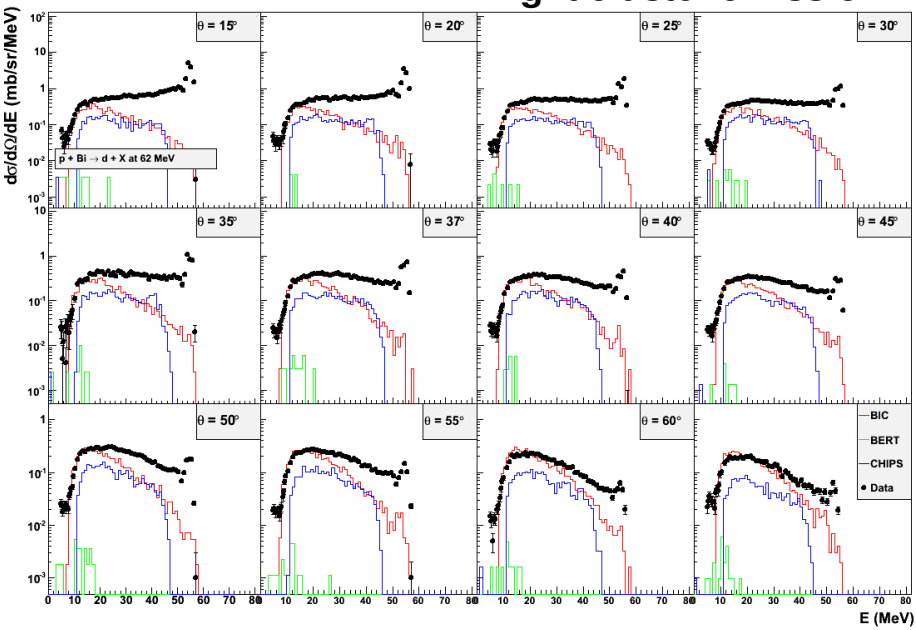
2. J. M. Quesada, Progress in GEM and PreCompound models

IAEA benchmark of spallation data: 20 MeV to 3 GeV

Isotope production at 1000 MeV

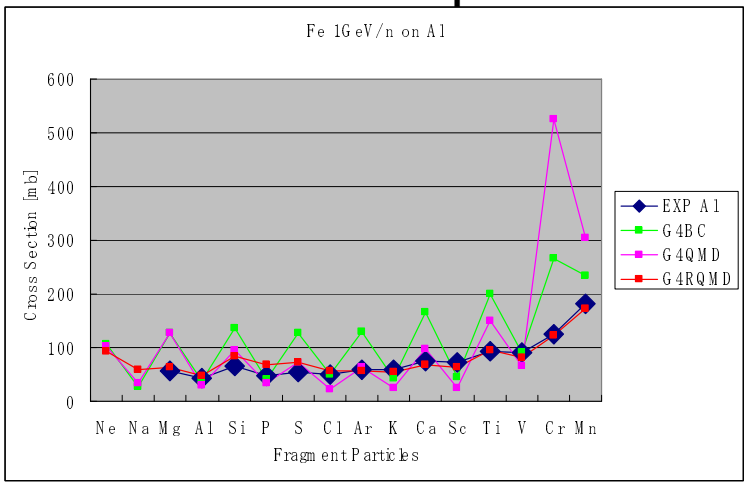


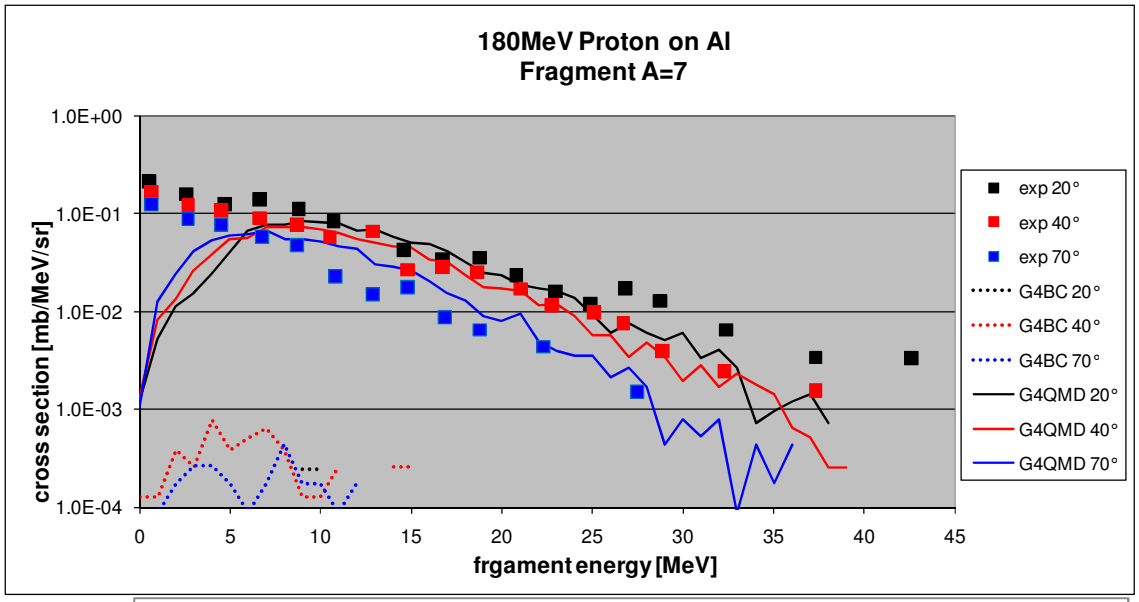
Light cluster emission



3. KOI, Tatsumi, QMD Update

Corrected meson absorption



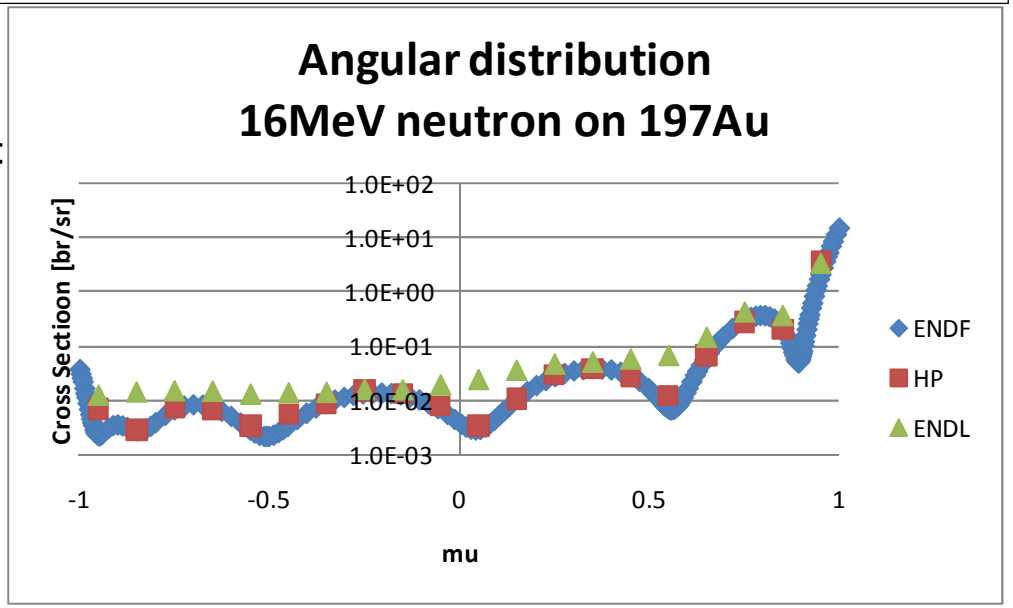


4. KOI, Tatsumi, The ENDL interface

ENDL is open to public

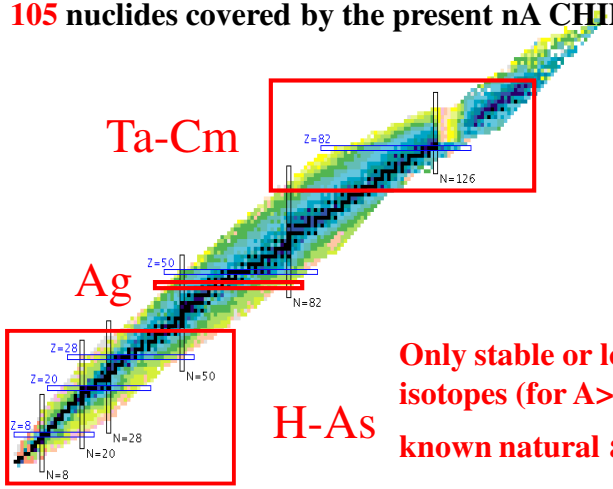
ENDL does not do Doppler broadening on flight

Mass problem



5. M. Kosov, CHIPS (n,γ) capture

105 nuclides covered by the present nA CHIPS implementation



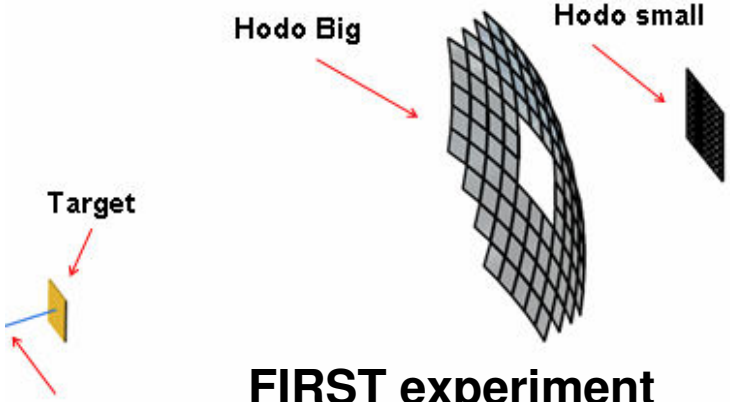
Only stable or long living isotopes (for A>227) with known natural abundance

ENDF/B-VII was used for the cross-sections improvement

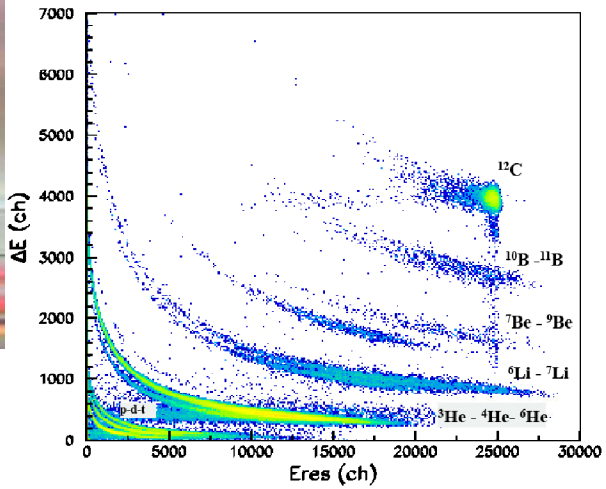
The CHIPS fit can be easily supported and updated

6.C.Agodi, A.Blancato, G.A.P.Cirrone, G.Cuttone, M.De Napoli, F.Giacoppo, E.Rapisarda, F.Romano, D.Sardina, C.Sfienti, S.Tropea

Ion-ion validation at low energy

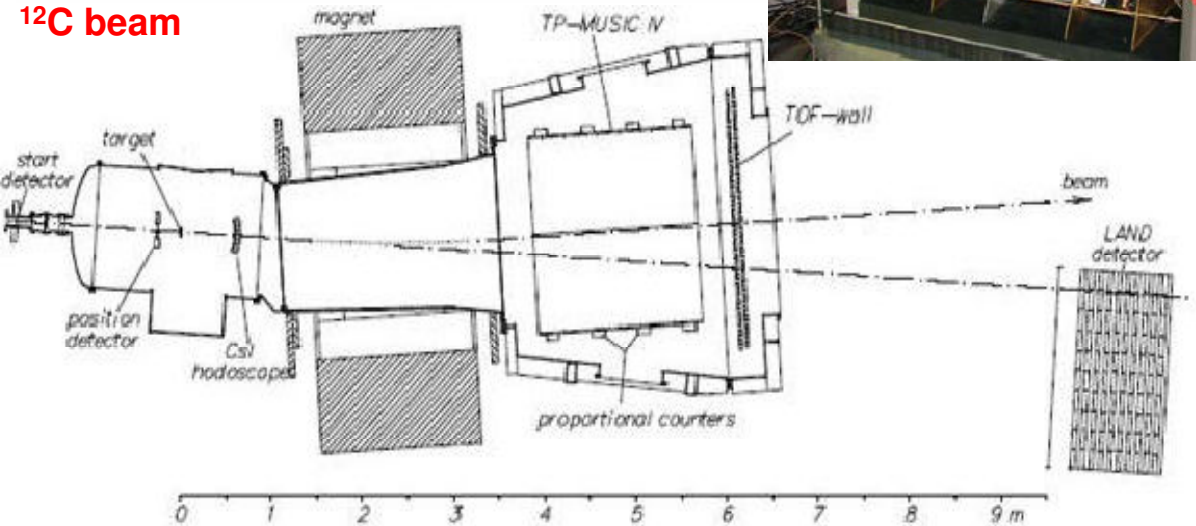


$^{12}C + ^{197}Au$ @ 62 MeV/n → p, d, t, ^{3}He, α, ^{6}He, ^{6}Li, ^{7}Li, ^{7}Be, ^{9}Be, ^{10}B, ^{11}B , ^{11}C

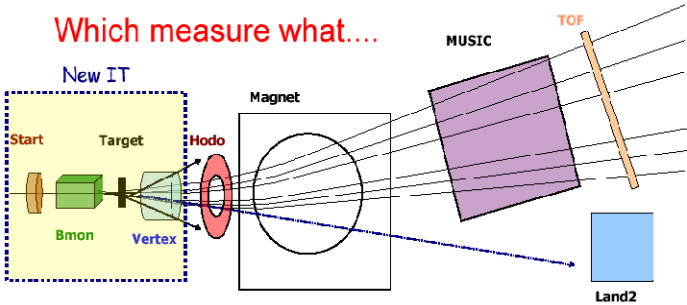


FIRST experiment

^{12}C beam



Which measure what....



MUSIC → Z/p , θ,φ after bending

MUSIC → Energy loss ∝ $(Z/\beta)^2$

Hodo→ Large angle fragment energy, θ,φ

Vertex → Fragments emission θ,φ

Start and TOF wall →TOF= L(p,Z,θ,φ)/β

Bmon → Beam impact point

To extract Z, A, θ_{emiss}, p_{emiss} the reconstruction must exploit all the setup information

LAND2 →neutron flux

FIRST : Fragmentation of Ions Relevants for Space and Therapy

INFN (LNS,LNF,MI,TO,RM2,RM3) :

C.Agodi, G.Battistoni, T.Bohlen, G.A.P.Cirrone, G.Cuttone, M.De Napoli, E.Iarocci, F.Marchetto, M.C.Morone, V.Patera, E.Rapisarda, F.Romano, P.Sala, A.Sciubba, C.Sfienti, E.Spiriti

Dsm/IRFU/SPHN CEA,IN2P3: Saclay, Caen, Strasbourg, Lyon

A.Boudard, J.E.Ducret, F.Haas, M.Labalme, S.Leray, M.D.Salsac, C.Ray

GSI

T.Aumann, K.Boretzy, M.Durante, M.Helic, A.Kelic, R.Pleskac, M.V.Ricciardi, D.Schardt, C.Scheidenberger, H.Simon, M.Winkler

ESA

P.Nieminen, G.Santin