

수민

김

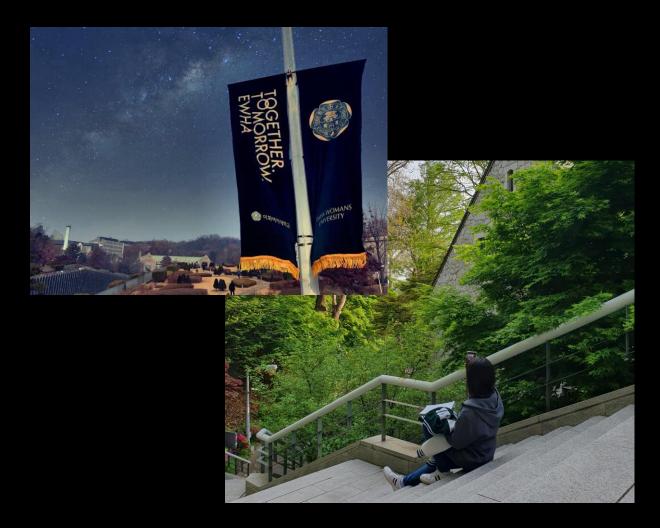
GEA & TOF Δ ii 1

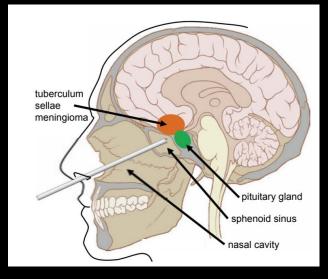
-

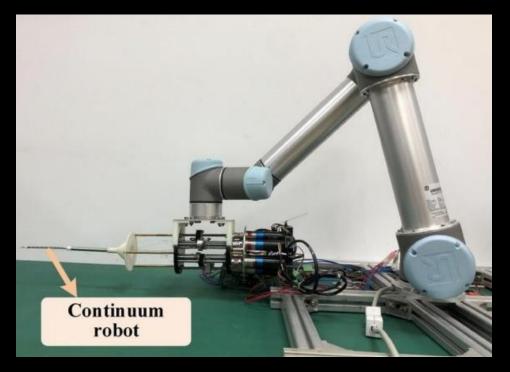
1

Ĩ

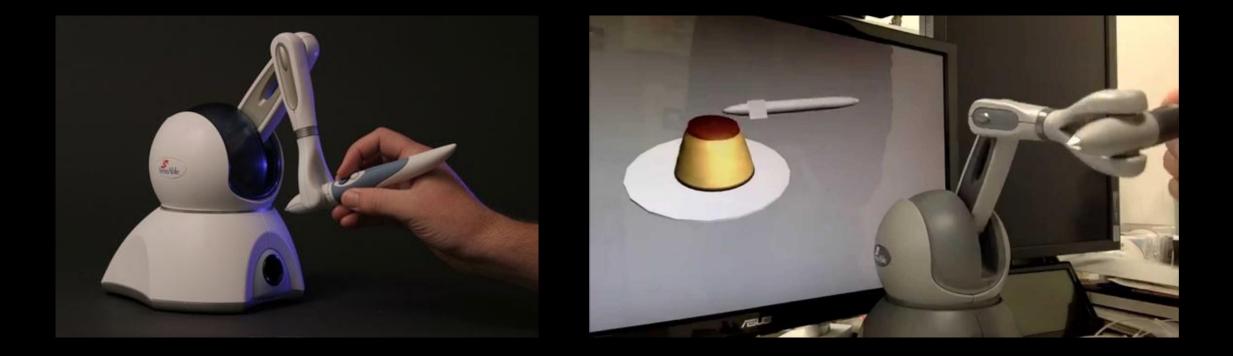
What I Used to Do

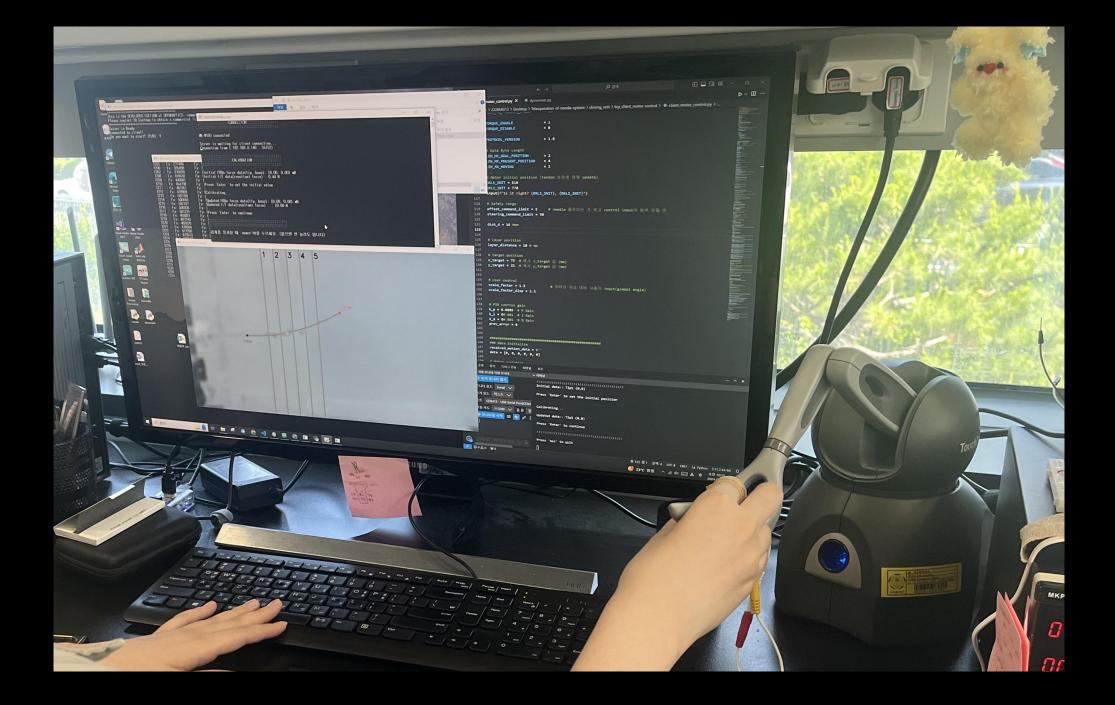






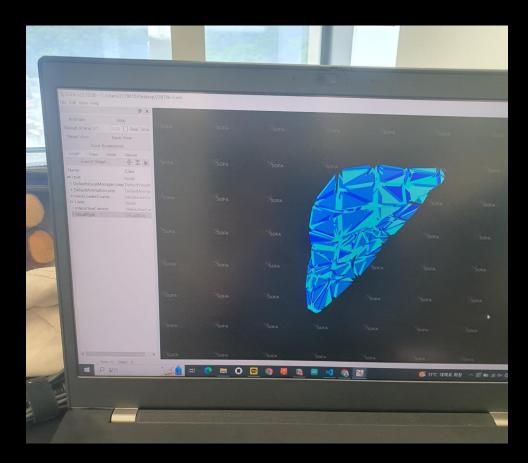
Haptic Device - PHANToM OMNI

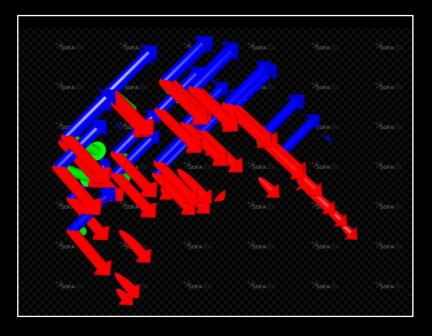


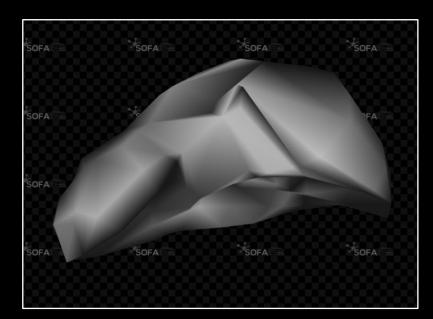


SOFA









```
<MeshTopolgy name="meshLoaderfile" filename= "mesh/liver.???" />
       <Node name="Liver" >
         <EulerImplicitSolver />
11
12
         <CGLinearSolver iterations="200" tolerance="1e-09" threshold="1e-09" />
13
         <TetrahedronSetTopologyContainer name="topo" src="@../meshLoaderCoarse" />
14
         <TetrahedronSetTopologyGeometryAlgorithms template= "Vec3d" name= "GeomAlgo"/>
15
         <MechanicalObject template="Vec3d" name="MechanicalModel" showObject="1" />
         <TetrahedronFEMForceField name= "FEM" youngModulus= "1000" poissonRatio= "0.4" method= "polar" />
         <MeshMatrixMass massDensity= "1" />
17
         <ConstantForceField totalforce ="100 0 0" />
18
19
         <FixedConstraint indices= "1 3 50" />
         <Node name="Visual" >
21
           <OglModel name="VisualModel" src="@../../meshLoaderFine" />
22
           <BarycentricMapping name="Mapping" input="@../MechanicalModel" output="@VisualModel" />
23
         </Node>
24
25
         <Node name="Collision">
           <Mesh src="@../../meshLoaderFine"/>
27
           <MechanicalObject name="StoringForces" scale="1.0" />
           <TriangleCollisionModel name="CollisionModel" contactStiffness="3"/>
           <BarycentricMapping name="CollisionMapping" input="@../" output="@StoringForces" />
29
         </Node>
31
32
         <Node name="TriangularSurface" >
           <TriangleSetTopologyContainer name= "Container" />
           <TriangleSetTopologyModifier name= "Modifier" />
34
           <Tetra2TriangleTopologicalMapping input="@../topo" output= "@Container"/>
           <TriangleCollisionModel name="CollisionModel" contactStiffness="1"/>
37
         </Node>
```

n_TOF

The neutron time-of-flight facility (n_TOF) studies neutron-nucleus interactions for neutron energies ranging from a few meV to several GeV EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Proposal to the ISOLDE and Neutron Time-of-Flight Committee

Measurement of the $Ta(n,\gamma)$ cross-section at EAR1

September 26, 2022

V. Alcayne¹, D. Cano-Ott¹, E. González-Romero¹, T. Martínez¹, E. Mendoza¹, A. Sánchez-Caballero¹, J. Balibrea-Correa², F. Calviño³, R. Capote⁴, A. Casanovas³, C. Domingo-Pardo² and J. Lerendegui-Marco².

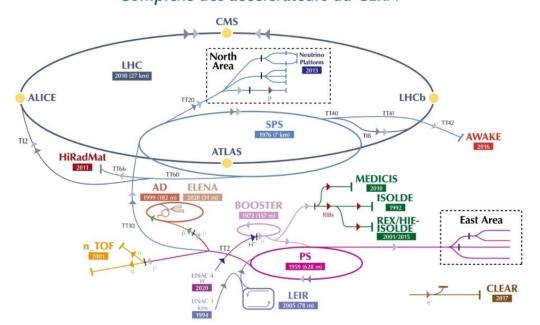
Review

Theranostics in Boron Neutron Capture Therapy

Wolfgang A. G. Sauerwein ^{1,2,3,*}, Lucie Sancey ⁴, Evamarie Hey-Hawkins ^{1,5}, Martin Kellert ⁵, Luigi Panza ^{1,6}, Daniela Imperio ^{1,6}, Marcin Balcerzyk ^{7,8}, Giovanna Rizzo ⁹, Elisa Scalco ⁹, Ken Herrmann ¹⁰, PierLuigi Mauri ^{1,11,12}, Antonella De Palma ¹¹ and Andrea Wittig ^{1,13}

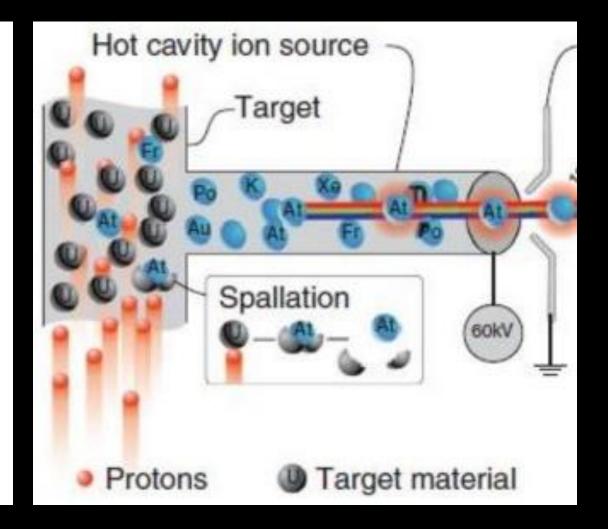
n_TOF Spallation

The CERN accelerator complex Complexe des accélérateurs du CERN



H⁻ (hydrogen anions) p (protons) ions RIBs (Radioactive Ion Beams) n (neutrons) p (antiprotons) e e (electrons) μ (muons)

LHC - Large Hadron Collider // SPS - Super Proton Synchrotron // PS - Proton Synchrotron // AD - Antiproton Decelerator // CLEAR - CERN Linear Electron Accelerator for Research // AWAKE - Advanced WAKefield Experiment // ISOLDE - Isotope Separator OnLine // REX/HIE-ISOLDE - Radioactive EXperiment/High Intensity and Energy ISOLDE // MEDICIS // LEIR - Low Energy Ion Ring // LINAC - LINear ACcelerator // n_TOF - Neutrons Time Of Flight // HiRadMat - High-Radiation to Materials // Neutrino Platform



Documentation

User Forum [™]

Bug Reports [₽] Events

Contact Us

Geant4

Toolkit for the simulation of the passage of particles through matter. Its areas of application include high energy, nuclear and accelerator physics, as well as studies in medical and space science.

C2A

Getting started

() Get started

Everything you need to get started with Geant4.

I'm ready to start!

La Download

Geant4 source code and installers are available for download, with source code under an open source license.

Docs

Documentation for Geant4, along with tutorials and guides, are available online.

Read documentation

News

>> More

28 Jun 2024 Release 11.3.beta 21 Jun 2024 Release 11.2.2

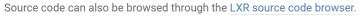
Latest: 11.2.2

S GEANT4 About Download	Documentation User Forum ^{ee} Bug Reports ^{ee} Events Contact Us
Home > Download > Download Geant4-11.2.2	
Download Geant4-11.2.2	G Geant4-11.2 설치 - X
First released 21 Jun 2024 Old releases	Geant4-11.2 설치를 시작합니다.
License	이 프로그램은 당신의 컴퓨터에 Geant4-11.2(을)를 설치할 것입 니다.
See the license conditions.	설치를 시작하기 전 가능한 한 모든 프로그램을 종료하며 주시 기 바랍니다. 이는 제부팀을 하지 않고서도 시스템 파일을 수정 알 수 있게 해줍니다. 계속하시려면 '다음' 버튼을 눌러 주세요.
RELEASE NOTES	
See:	
Main Release Notes - Patch-1 - Patch-2 -	
Source code	<u>다음 〉</u> 취소
Source code is freely available from <u>CERN GitLab</u> or through <u>GitHub</u> . Source code can also be browsed through the LXR source code browser.	
course code can also be browsed anough the EXT source code browset.	Developer PowerShell for VS 2022
Download zip Download tar.gz Download tar.bz2 Download tar	**************************************
	cmake [options] <path-to-source> cmake [options] <path-to-existing-build> cmake [options] -S <path-to-source> -B <path-to-build></path-to-build></path-to-source></path-to-existing-build></path-to-source>
	Specify a source directory to (re-)generate a build system fo current working directory. Specify an existing build directo re-generate its build system.
	Run 'cmakehelp' for more information.
	PS C:#Program Files#Microsoft Visual Studio#2022#Community>

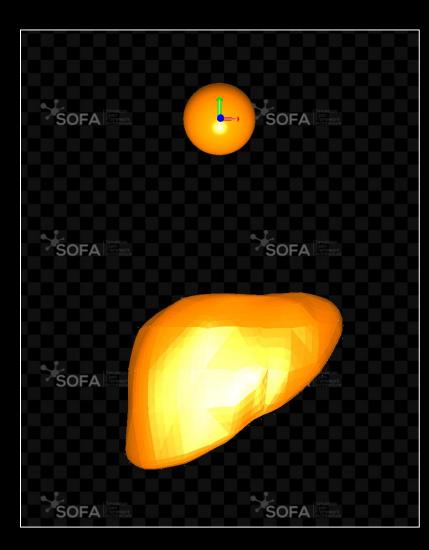
***** hell v17.10.3 ation Studio#2022#Community> cmake ild> <u>-B <path-to-build></u> nerate a build system for it in the n existing build directory to

 \times

Sou



Multiple Objects



			_	
Geant4 — 🗆	×	viewer-0 (OpenGLStoredWin32)	- 🗆	×
4 View Zoom	_			
] Q, Q, ⇒ №? D 🖬				
Introl Number of sourts processed i 1 sus=0.0000000 [Cpu=0.0%] its Uses=0.0000000000000000000000000000000000			G4	

[
Geant4	- 🗆 X	Viewer-0 (OpenGLStoredWin32) - X
Geant4 View Zoom		
E- control	DefaultRegionForTheWorld	
- cout	Index : 1 used in the geometry : Yes Material : G4_MATER	
setCoutFile setCerrFile	Range outs : ganna 700 un e- 700 un e+ 700 u Energy thresholds : ganna 2,52521 keU e- 277.633 keU e Region (s) which use this couple : Default Region For The Korld	
···· useBuffer ···· prefixString	Index : 2 used in the geometry : Yes Material : G4_A-150_IISSUE Range cuts : gamma 2,02343 keU e- 301.331 keU c Energy thresholds : gamma 2,23343 keU e- 381.331 keU c	
ignoreThreadsExce	Range cuts "	
ignoreInitialization	Index : 3 used in the geometry : Yes Material : G4_BONE_COMPACT_ICRU	
macroPath	Index 3 . dussdein the geonative : Ves Range cut Ga Bohl ganna 790 un Energy thresholds : ganna 393604 kev - 200 un e Bohl Keylo Robert - 200 un e Bohl Keylo Robert - 100 kev e - 398.36 kev e + 200 kev - 200 kev - 200 kev - 200 kev - 200 kev e + 200 kev -	
execute		
loop	### Run 0 starts.	
foreach suppressAbortion		
	-> G4TaskRunManager::CreateAndStartWorkers()> Creating 1 tas}	
	Run terminated. Run summary	
saveHistory	Adding task 0 to task-group Run Germinated. Run Sitmay wents processed 1 User=0,2190005 Real=0.1350105 Sys=0.00000005 [Cpu=161.3%]	
stopSavingHistory	The run consists of 1	
alias	Cumulated dose per run, in scoring volume : 0 picoGy rms = 0 p	
unalias	1 event has been kept for refreshing and/or reviewing. "/vis/reviewkeptEvents" to review one by one.	
listAlias	To see accumulated, "/vis/enable", then "/vis/viewer/flush" or /vis/viewer/set/viewpointThetaPhi 0. 0.	
getEnv	1 event has been kept for refreshing and/or reviewing. "/vis/verviewkeptkonts" to review one by one. To see accumulated. /vis/enable, then "/vis/viewer/flush" or /vis/viewer/set/viewpointThetaPhi 0.0. /vis/viewer/set/styles /vis/viewer/set/styles	
gerra	/vis/viewer/set/style w	
echo shell	/vis/viewer/set/viewpointThetaPhi 4545. /vis/viewer/set/viewpointThetaPhi 8. 8.	
manual	/vis/visues/sst/visupointThetaPhi 0. 0. /vis/visues/refresh /vis/visues/refresh /vis/visues/refresh	
createHTML	/vis/viewer/refresh /vis/viewer/set/projection p	·
maximumStoredHisto 🗸	< >	
< >	/control/cout/setCerrFile	
	,	

Creating Materials for Simulation

<pre><meshtopolgy filename="mesh/liver.???" name="meshLoaderfile"></meshtopolgy> <node name="Liver"> <eulerimplicitsolver></eulerimplicitsolver> <cglinearsolver iterations="200" threshold="1e-09" tolerance="1e-09"></cglinearsolver> <tetrahedronsettopologycontainer name="topo" src="@/meshLoaderCoarse"></tetrahedronsettopologycontainer></node></pre>	G4double z, a, fractionmass, density; G4String name, symbol; G4int ncomponents;	
<tetrahedronsettopologygeometryalgorithms name="GeomAlgo" template="Vec3d"></tetrahedronsettopologygeometryalgorithms> <mechanicalobject name="MechanicalModel" showobject="1" template="Vec3d"></mechanicalobject> <tetrahedronfemforcefield method="polar" name="FEM" poissonratio="0.4" youngmodulus="1000"></tetrahedronfemforcefield> <meshmatrixmass massdensity="1"></meshmatrixmass>	<pre>a = 14.01*g/mole; G4Element* elN = new G4Element(name="Nitrogen",symbol="N" , z= 7., a); a = 16.00*g/mole;</pre>	
<constantforcefield totalforce="100 0 0"></constantforcefield> <fixedconstraint indices="1 3 50"></fixedconstraint>	G4Element* el0 = new G4Element(name="Oxygen" ,symbol="0" , z= 8., a);	
<pre><node name="Visual"> <oglmodel name="VisualModel" src="@//meshLoaderFine"></oglmodel> <barycentricmapping input="@/MechanicalModel" name="Mapping" output="@VisualModel"></barycentricmapping> </node></pre>	<pre>density = 1.290*mg/cm3; G4Material* Air = new G4Material(name="Air ",density,ncomponents=2); Air->AddElement(elN, fractionmass=70*perCent); Air->AddElement(elO, fractionmass=30*perCent);</pre>	



New Standard Evaluated Neutron Cross Section Libraries for the GEANT4 Code and First Verification

Emilio Mendoza, Daniel Cano-Ott, Tatsumi Koi, and Carlos Guerrero on behalf of the GEANT4 collaboration

Monte Carlo simulations of the n_TOF lead spallation target with the Geant4 toolkit: A benchmark study

J. Lerendegui-Marco^{1,a}, M.A. Cortés-Giraldo¹, C. Guerrero¹, J.M. Quesada¹, S. Lo Meo^{2,3}, C. Massimi M. Barbagallo⁵, N. Colonna⁵, D. Mancussi⁶, F. Mingrone⁷, M. Sabaté-Gilarte^{7,1}, G. Vannini^{3,4}, V. Vlach O. Aberle⁷, J. Andrzejewski⁸, L. Audouin⁹, M. Bacak^{6,7,10}, J. Balibrea¹¹, F. Bečvář¹², E. Berthoumieux⁶, J D. Bosnar¹⁴, A. Brown¹⁵, M. Caamaño¹⁶, F. Calviño¹⁷, M. Calviani⁷, D. Cano-Ott¹¹, R. Cardella⁷, A. Ca F. Cerutti⁷, Y.H. Chen⁹, E. Chiaveri^{1,7,13}, G. Cortés¹⁷, L. Cosentino¹⁸, L.A. Damone^{5,19}, M. Diakaki⁶, C. Doi R. Dressler²¹, E. Dupont⁶, I. Durán¹⁶, B. Fernández-Domínguez¹⁶, A. Ferrari⁷, P. Ferreira²², P. Finocchiaro M.B. Gómez-Hornillos¹⁸, A.R. García¹¹, A. Gawlik⁸, S. Gilardoni⁷, T. Glodariu²⁴, I.F. Goncalves²², E. G E. Griesmayer¹⁰, F. Gunsing^{6,7}, H. Harada²⁵, S. Heinitz²¹, J. Heyse²⁶, D.G. Jenkins¹⁵, E. Jericha¹⁰, F. Käppe A. Kalamara²⁸, P. Kavrigin¹⁰, A. Kimura²⁵, N. Kivel²¹, M. Kokkoris²⁸, M. Krtička¹², D. Kurtulgil²³, E. Leal-Cidoncha¹⁶, C. Lederer²⁹, H. Leeb¹⁰, S.J. Lonsdale²⁹, D. Macina⁷, J. Marganiec^{8,30}, T. Martínez¹¹, A. Masi⁷, P. Mas M. Mastromarco⁵, E.A. Maugeri²¹, A. Mazzone^{5,32}, E. Mendoza¹¹, A. Mengoni²⁷, P.M. Milazzo³³, A. Mu A. Negret²⁴, R. Nolte³⁰, A. Oprea²⁴, N. Patronis³⁵, A. Pavlik³⁶, J. Perkowski⁸, I. Porras³⁷, J. Praena³⁷, D. T. Rauscher^{38,39}, R. Reifarth²³, P.C. Rout⁴⁰, C. Rubbia⁷, J.A. Ryan¹³, A. Saxena⁴⁰, P. Schillebeeckx²⁶, D. S A.G. Smith¹³, N.V. Sosnin¹³, A. Stamatopoulos²⁸, G. Tagliente⁵, J.L. Tain²⁰, A. Tarifeño-Saldivia¹³, L. Ta S. Valenta¹², V. Variale⁵, P. Vaz²², A. Ventura²⁸, R. Vlastou²⁸, A. Wallner⁴¹, S. Warren¹³, P.J. Woods²⁹, T. P. Žugec^{14,7}, and the n_TOF Collaboration

Geant4 simulation of the n_TOF-EAR2 neutron beam: Characteristics and prospects

J. Lerendegui-Marco^{1,a}, S. Lo Meo^{2,3}, C. Guerrero¹, M.A. Cortés-Giraldo¹, C. Massimi^{3,4}, J.M. Quesada¹, M. Barbagallo⁵, N. Colonna⁵, D. Mancusi⁶, F. Mingrone³, M. Sabaté-Gilarte^{1,6}, G. Vannini^{3,4}, V. Vlachoudis⁶, and the n-TOF Collaboration^{7,b}

GEANT4 simulations of the n_TOF spallation source and their benchmarking

S. Lo Meo^{1,2,a}, M.A. Cortés-Giraldo⁶, C. Massimi^{2,3}, J. Lerendegui-Marco⁶, M. Barbagallo⁴, N. Colonna⁴, C. Guerrero⁶, D. Mancusi⁵, F. Mingrone², J.M. Quesada⁶, M. Sabate-Gilarte^{6,7}, G. Vannini^{2,3}, V. Vlachoudis⁷, and The n_TOF Collaboration^b

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

HPGe detector test at n_TOF: Feasibility study for neutron inelastic scattering measurements

May 3, 2021

M. Barbagallo^{1,2}, M. Diakaki³, Z. Eleme⁴, M. Kokko N. Patronis⁴, C. Petrone⁶, M.E. Stamati⁴, A. Sta Tsinganis⁹, R. Vlast

The CERN n_TOF NEAR station for astrophysics- and application-related neutron activation measurements.

N. Patronista, A. Mengonias, N. Colonnato, M. Cecchettoz, C. Domingo-Pardos, O. Aberlez, J. Lerendegui-Marcos, G. Gervinos, M.E. Stamatii, S. Goulai, A.P. Bernardesa, M. Mastromarco441, A. Mannar, R. Vlastous, C. Massimir 40, M. Calviania, V. Alcaynea, S. Altierito, S. Amaduccitt, J. Andrzejewskita, V. Babiano-Suareza, M. Bacaka, J. Balibreas, C. Beltramito, S. Bennettis, E. Berthoumieuxia, M. Boromizais, D. Bosnaria, M. Caamaño17, F. Calviño18, D. Cano-Otto, A. Casanovas18, F. Ceruttiz, G. Cescutti1920, S. Chasapoglous, E. Chiaveria, P. Colombettiai, P. Console Campriniz, G. Cortésia, M. A. Cort'es-Giraldoza, L. Cosentinoi, S. Cristallozz 24, S. Dellmann25, M. Di Castro2, S. Di Maria26, M. Diakakis, M. Dietz27, R. Dressler26, E. Dupont14, I. Durán17, Z. Elemei, S. Fargiera, B. Fernándezas, B. Fernández-Dom'inguezi7, P. Finocchiaroli, S. Fioreaa, V. Furmanso, F. Garc'ia-Infantessi, A. Gawlik-Ramiegais, S. Gilardonis, E. González-Romeros, C. Guerreross, F. Gunsing14, C. Gustavino51, J. Heysess, W. Hillman12, D. G. Jenkins54, E. Jerichass, A. Junghans56, Y. Kadia, K. Kaperonis, G. Kauria, A. Kimurasz, I. Knapováss, M. Kokkoriss, Y. Kopatchso, M. Krtičkass, N. Kyritsiss, I. Ladarescu19, C. Lederer-Woods19, G. Lernera, T. Mart'inezo, A. Masia, P. Mastinual, E. A. Maugerias, A. Mazzone45, E. Mendozao, P. M. Milazzo10, R. Mucciola25, F. Murtas44, E. Musacchio-Gonzalez41, A. Musumarrats, A. Negretis, A. P'erez de Radao, P. P'erez-Marotozo, J. A. Pavón-Rodr'iguezzo, M. G. Pellegritiz, J. Perkowskiia, C. Petroneis, E. Pirovanoar, J. Plazaa, S. Pompae, I. Porrassi, J. Praenasi, J. M. Quesadaaa, R. Reifarthes, D. Rochmanes, Y. Romanetses, C. Rubbias, A. Sáncheze, M. Sabat'e-Gilartes, P. Schillebeeckxss, D. Schumannas, A. Sekharis, A. G. Smithis, N. V. Sosninso, A. Sturniolos, G. Taglientes, D. Tarr'1046, P. Torres-Sánchezsi, S. Urlassi, E. Vagenai, S. Valentasa, V. Variales, P. Vazza, G. Vecchioii, D. Vescovizs, V. Vlachoudise, T. Wallnerse, P. J. Woodsse, T. Wrightis, R. Zarrellane, and P. Žugec, is The n_TOF Collaboration