Embedding at STAR-BNL

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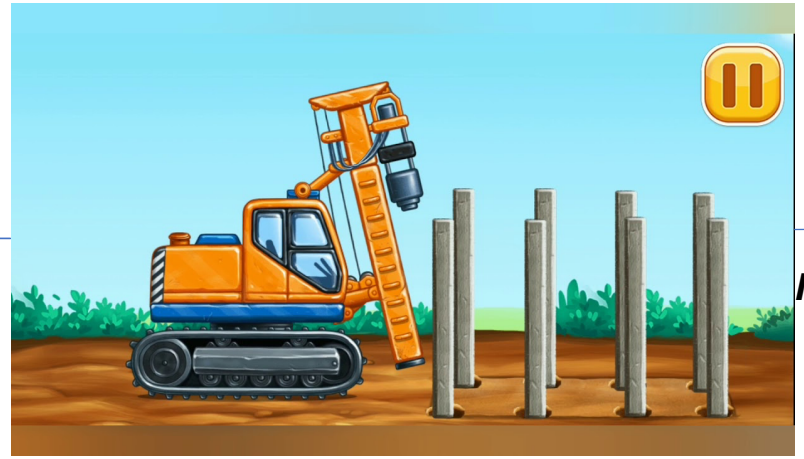
Motivation

7.7
11.5
14.5
19.6
27
39
62.4
200

Beam-energy

Au+Au
U+U
Cu+Au
Cu+Cu
*p*Au
*d*Au
He+Au

System-size



Data production

Quality assurance
embedding
closure test

Interesting topics

Paper and Analysis note

A well-built production is essential

Beam-energy: Au+Au 200GeV and U+U 193GeV embedding

Summary of embedding production

Au+Au@200GeV

AuAu200_production_2011	auau200	year2011	2012801	Kplus	P11id	SL11d_embed	100	101	144164	218	418	BNL
AuAu200_production_2011	auau200	year2011	2012801	PiMinus	P11id	SL11d_embed	100	101	142642	216	412	BNL
AuAu200_production_2011	auau200	year2011	2012801	PiPlus	P11id	SL11d_embed	100	101	142974	216	414	BNL
AuAu200_production_2011	auau200	year2011	2012801	Kminus	P11id	SL11d_embed	100	101	145383	218	415	BNL
AuAu200_production_2011	auau200	year2011	20122401	Electron	P11id	SL11d_embed	100	111	357563	1293	2424	BNL
AuAu200_production_2011	auau200	year2011	20122401	Positron	P11id	SL11d_embed	100	111	348467	1273	2345	BNL
AuAu200_production_2011	auau200	year2011	20133701	AntiProton	P11id	SL11d_embed	301	361	1495786	2256	528	BNL
AuAu200_production_2011	auau200	year2011	20133701	Proton	P11id	SL11d_embed	100	319	2877926	2304	1371	BNL

U+U@200GeV

UU_production_2012	UU193	year2012	20124801	piplus	P12id	SL12d_embed	300	302	202551	284	301	BNL
UU_production_2012	UU193	year2012	20124803	kminus	P12id	SL12d_embed	100	102	202551	282	302	BNL
UU_production_2012	UU193	year2012	20124802	piminus	P12id	SL12d_embed	100	102	202551	279	302	BNL
UU_production_2012	UU193	year2012	20124804	kplus	P12id	SL12d_embed	100	102	201805	278	298	BNL
UU_production_2012	UU193	year2012	20142801	PiPlus	P12id	SL12d_embed	100	107	1060818	1831	1316	BNL
UU_production_2012	UU193	year2012	20142801	PiMinus	P12id	SL12d_embed	100	106	924538	1597	1145	BNL
UU_production_2012	UU193	year2012	20142801	KPlus	P12id	SL12d_embed	100	106	923913	1536	1148	BNL
UU_production_2012	UU193	year2012	20142801	AntiProton	P12id	SL12d_embed	100	106	926661	1598	1162	BNL
UU_production_2012	UU193	year2012	20142801	KMinus	P12id	SL12d_embed	100	106	926624	1599	1153	BNL
UU_production_2012	UU193	year2012	20142801	Proton	P12id	SL12d_embed	100	106	929061	1603	1153	BNL

Page information

https://drupal.star.bnl.gov/STAR/starsimrequest

0	Normal	2012810	Standard Emb.	Heavy Flavor	Thu, 2012-02-23 10:43	Wed, 2013-03-13 23:15	K+ in Run 11 200 GeV	Closed
0	Normal	2012809	Standard Emb.	Heavy Flavor	Thu, 2012-02-23 10:41	Wed, 2013-03-13 23:15	K- in Run 11 Au+Au 200	Closed
0	Normal	2012808	Standard Emb.	Heavy Flavor	Thu, 2012-02-23 10:40	Wed, 2013-03-13 23:14	pi- in Run 11 Au+Au 200	Closed
0	Normal	2012807	Standard Emb.	Heavy Flavor	Thu, 2012-02-23 10:36	Wed, 2013-03-13 23:14	pi+ in Au+Au 200GeV Run 11	Closed

Larger (or

Request Type

Standard Embedding request (particle in real events)

Description

==========
number of events: 70 K
Real Data: VpdMB (TrigID = 350003,350013,350023,350033,350043)
Production: P11id
Library: SL11d
Geometry: y2011
Particles per event 5% mult
Vz: (-60, 60)
Phi: (0, 6.29) in radian, flat
eta: (-1, 1), flat
pT: (0,8) GeV/c, flat
Particle: K+

General Information

Request ID	2012810
Priority: EC	0
Priority: pwg	Normal
Status	Closed
Physics Working Group	Heavy Flavor
Requested by	bielcik
Contact email(s)	jaroslav.bielcik@fjfi.cvut.cz, yfzhang@rcf.rhic.bnl.gov
Contact phone(s)	
PWG email(s)	heavy-hn@www.star.bnl.gov
Assigned Deputy:	Not assigned
Assigned Helper:	Not assigned

Global Simulation Settings

Request type:	Standard Embedding request (particle in real events)
Number of events	70000 = *70 K*
Magnetic Field	---- SELECT MAGFIELD ----
Collision Type	auau 200GeV
Centrality	---- SELECT CENTRALITY ----
BFC tags	
Production	---- SELECT PRODUCTION TAG ----
Geometry: simu	
Geometry: reco	
Library	---- SELECT STAR LIBRARY ----
Vertex option	Force vertex as MC vertex
Pileup option	No
Detector Set	ppre wrap= Real Data: VpdMB (TrigID = 350003,350013,350023,350033,350043)re

Single Particle MC

Particle	Kaon+
Particle settings	Flat in Pt
Particles per event	*1*
Vertex Z, cm	-60 < Vertex < 60
Gaussian sigma in X,Y,Z (cm), if applicable	0, 0, 0
Vertex offset: x, mm	0
Vertex offset: y, mm	0
Φ (phi), radian	0 < Φ < 6.29
η (eta)	-1 < η < 1
Pt, GeV	0 < Pt < 8

Pbar in Run11 Au+Au 200 GeV

View | Change request state | Request History

Updated on Tue, 2014-01-28 14:22 by **kxin**. Originally created by **bielcik** on 2013-07-30 19:20.

Request Type

Standard Embedding request (particle in real events)

Description

==========
number of events: 70 K
Real Data: VpdMB (TrigID = 350003,350013,350023,350033,350043)
Production: P11id
Library: SL11d
Geometry: y2011
Particles per event 5% mult
Vz: (-30, 30)
Phi: (0, 6.29) in radian, flat
eta: (-1, 1), flat
pT: (0,5) GeV/c, flat
Particle: anti-proton

General Information

Request ID	20133101
Priority: EC	0
Priority: pwg	Normal
Status	Closed
Physics Working Group	Jet-like correlations
Requested by	zhux
Contact email(s)	fqwang@purdue.edu,mio@comp.tamu.edu,jana.bielcikova@ujf.cas.cz
Contact phone(s)	
PWG email(s)	jetcorr-hn@www.star.bnl.gov
Assigned Deputy:	Not assigned
Assigned Helper:	Not assigned

Global Simulation Settings

Request type:	Standard Embedding request (particle in real events)
Number of events	70000 = *70 K*
Magnetic Field	---- SELECT MAGFIELD ----
Collision Type	auau 200GeV
Centrality	---- SELECT CENTRALITY ----
BFC tags	
Production	P11id
Geometry: simu	---- SELECT GEOMETRY ----
Geometry: reco	---- SELECT GEOMETRY ----
Library	SL11d_embed
Vertex option	Force vertex as MC vertex

Page information

https://drupal.star.bnl.gov/STAR/starsimrequest

0	Normal	20142801	Standard Emb.	Light Flavor Spectra	Wed, 2014-07-09 03:01	Sun, 2014-10-19 22:54	Pbar in Run 12 U+U 193 GeV	Closed
0	Normal	20142801	Standard Emb.	Light Flavor Spectra	Wed, 2014-07-09 03:00	Sun, 2014-10-19 22:54	Proton in Run 12 U+U 193 GeV	Closed
0	Normal	20142801	Standard Emb.	Light Flavor Spectra	Wed, 2014-07-09 02:57	Sun, 2014-10-19 22:54	K- in Run 12 U+U 193 GeV	Closed
0	Normal	20142801	Standard Emb.	Light Flavor Spectra	Wed, 2014-07-09 02:56	Sun, 2014-10-19 22:55	K+ in Run 12 U+U 193 GeV	Closed
0	Normal	20142801	Standard Emb.	Light Flavor Spectra	Wed, 2014-07-09 02:55	Sun, 2014-10-19 22:55	pi- in Run 12 U+U 193 GeV	Closed
0	Normal	20142801	Standard Emb.	Light Flavor Spectra	Wed, 2014-07-09 02:47	Sun, 2014-10-19 22:55	pi+ in Run 12 U+U 193 GeV	Closed

This is not right because 20142801's eta rage is from -0.5 to 0.5 (chunjian's opinion)

pi+ in U+U 193 GeV

View | Change request state | Request History

Updated on Fri, 2013-10-25 13:59 by mstftsm. Originally created by bielcik on 2012-11-30 16:05.

Request Type

Standard Embedding request (particle in real events)

Description

Particle: K+, K-, pi+, pi-;
Number of events: 70k each (in total 280k);
Real Data: VPD-ZDC-MB-Protected U+U 193GeV (TrigID =3D 400005, 400015, = 400025, 400035);
Production: SL12d, Library: SL12d, Geometry: y2012;
Particle per event 5% mult;
Vz: (-60, 60) cm;
Phi: (0, 6.29) in radian flat, Eta: (-1, 1) flat, pT: (0, 8) GeV flat.

General Information

Request ID	20124801
Priority: EC	0
Priority: pwg	Normal
Status	Closed
Physics Working Group	Heavy Flavor
Requested by	Zhenyu YE
Contact email(s)	jaroslav.bielcik@fjfi.cvut.cz, yezhenyu2003@gmail.com
Contact phone(s)	+1-312-9962198
PWG email(s)	heavy-hn@www.star.bnl.gov
Assigned Deputy:	
Assigned Helper:	Not assigned

Global Simulation Settings

Request type:	Standard Embedding request (particle in real events)
Number of events	70000 = *70 K*
Magnetic Field	---- SELECT MAGFIELD ----
Collision Type	UU 193GeV
Centrality	---- SELECT CENTRALITY ----
BFC tags	
Production	---- SELECT PRODUCTION TAG ----
Geometry: simu	---- SELECT GEOMETRY ----
Geometry: reco	y2012a
Library	---- SELECT STAR LIBRARY ----
Vertex option	Force vertex as MC vertex

Single Particle MC

Particle	Pion+
Particle settings	Flat in Pt
Particles per event	*0.05*
Vertex Z, cm	-60 < Vertex < 60
Gaussian sigma in X,Y,Z (cm), if applicable	0, 0, 0
Vertex offset: x, mm	0
Vertex offset: y, mm	0
Φ (phi), radian	0 < Φ < 6.29
η (eta)	-1 < η < 1
Pt, GeV	0 < Pt < 8

Single Particle MC

Particle	Alpha
Particle settings	dalitz
Particles per event	*1*
Vertex Z, cm	-30 < Vertex < 30
Gaussian sigma in X,Y,Z (cm), if applicable	0, 0, 0
Vertex offset: x, mm	0
Vertex offset: y, mm	0
Φ (phi), radian	0 < Φ < 6.29
η (eta)	-0.5 < η < 0.5
Pt, GeV	0 < Pt < 30

https://drupal.star.bnl.gov/STAR/starsimrequest

0	Normal	20124804	Standard Emb.	Heavy Flavor	Fri, 2012-11-30 16:13	Fri, 2013-10-25 13:59	K+ in U+U 193GeV	Closed
0	Normal	20124803	Standard Emb.	Heavy Flavor	Fri, 2012-11-30 16:11	Fri, 2013-10-25 14:00	K- in U+U 193GeV	Closed
0	Normal	20124802	Standard Emb.	Heavy Flavor	Fri, 2012-11-30 16:08	Fri, 2013-10-25 13:59	pi- in U+U 193GeV	Closed
0	Normal	20124801	Standard Emb.	Heavy Flavor	Fri, 2012-11-30 16:05	Fri, 2013-10-25 13:59	pi+ in U+U 193 GeV	Closed

20124801 is right.

Embedding data in RCF

Au+Au 200GeV

/star/data18/embedding/AuAu200_production_2011/

PiMinus_100_2012801	**Kminus_100_2012809**
PiMinus_101_2012801	**Kminus_101_2012809**
PiPlus_100_2012801	**Kplus_100_2012810**
PiPlus_101_2012801	**Kplus_101_2012810**

U+U 200GeV

/star/data18/embedding/UU_production_2012

Eta is from -0.5 to 0.5, not what we want.

PiPlus_100_20142801	PiMinus_100_20142801	KPlus_100_20142801	KMinus_100_20142801	Proton_100_20142801	AntiProton_100_20142801
PiPlus_101_20142801	PiMinus_101_20142801	KPlus_101_20142801	KMinus_101_20142801	Proton_101_20142801	AntiProton_101_20142801
PiPlus_102_20142801	PiMinus_102_20142801	kplus_102_20124804	kminus_102_20124803	Proton_102_20142801	AntiProton_102_20142801
PiPlus_103_20142801	PiMinus_103_20142801	KPlus_102_20142801	KMinus_102_20142801	Proton_103_20142801	AntiProton_103_20142801
PiPlus_104_20142801	PiMinus_104_20142801	KPlus_103_20142801	KMinus_103_20142801	Proton_104_20142801	AntiProton_104_20142801
PiPlus_105_20142801	PiMinus_105_20142801	KPlus_104_20142801	KMinus_104_20142801	Proton_105_20142801	AntiProton_105_20142801
PiPlus_106_20142801	PiMinus_106_20142801	KPlus_105_20142801	KMinus_105_20142801	Proton_106_20142801	AntiProton_106_20142801
PiPlus_107_20142801		KPlus_106_20142801	KMinus_106_20142801		

Embedding data in RCF

So we should use:

piplus_300_20124801	piminus_100_20124802
piplus_301_20124801	piminus_101_20124802
piplus_302_20124801	piminus_102_20124802

kplus_100_20124804	kminus_100_20124803
kplus_101_20124804	kminus_101_20124803
kplus_102_20124804	kminus_102_20124803

https://drupal.star.bnl.gov/STAR/starsimrequests/2012/nov/30/k-uu-193gev