

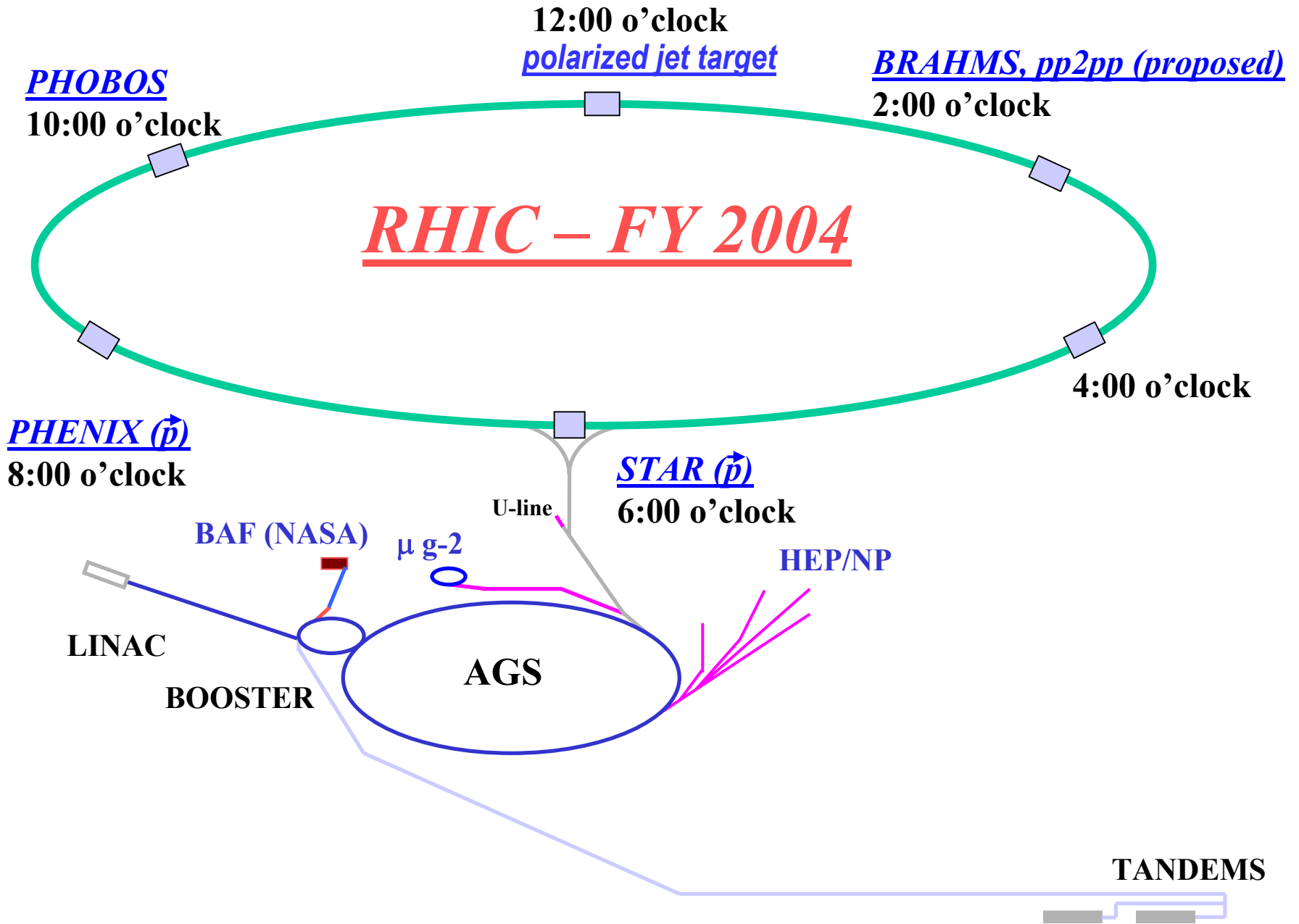
# RHIC/AGS Program Advisory Committee Meeting

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## *Collider-Accelerator Department Issues*

Philip Pile  
C-AD ES&F Division

29-30 Sep 2003



# Short Chronology of RHIC Run III (2002-2003)

- 1 Nov 2002 – Cryo Cooldown begins
- Cryo cooldown: 4.7 wks
- d-Au tune-up: 5.7 wks
- d-Au physics run: 10.0 wks
- pp tune-up: 5.7 wks
- pp physics run: 3.9 wks (includes ~ 2 day pp2pp run)
- Cryo warm-up: 0.6 wk
- 3 June 2003 – Cryo warm-up ends
- Total: 30.6 weeks

# RHIC Experiment Status

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- **Experiments**

- shield walls up, ready for beam 24 November 2003

- **Polarized jet target**

- move from jet lab to IR for testing begins on 8 October 2003
- move back to jet lab in November to complete testing
- 3 day RHIC access period required to install for commissioning run

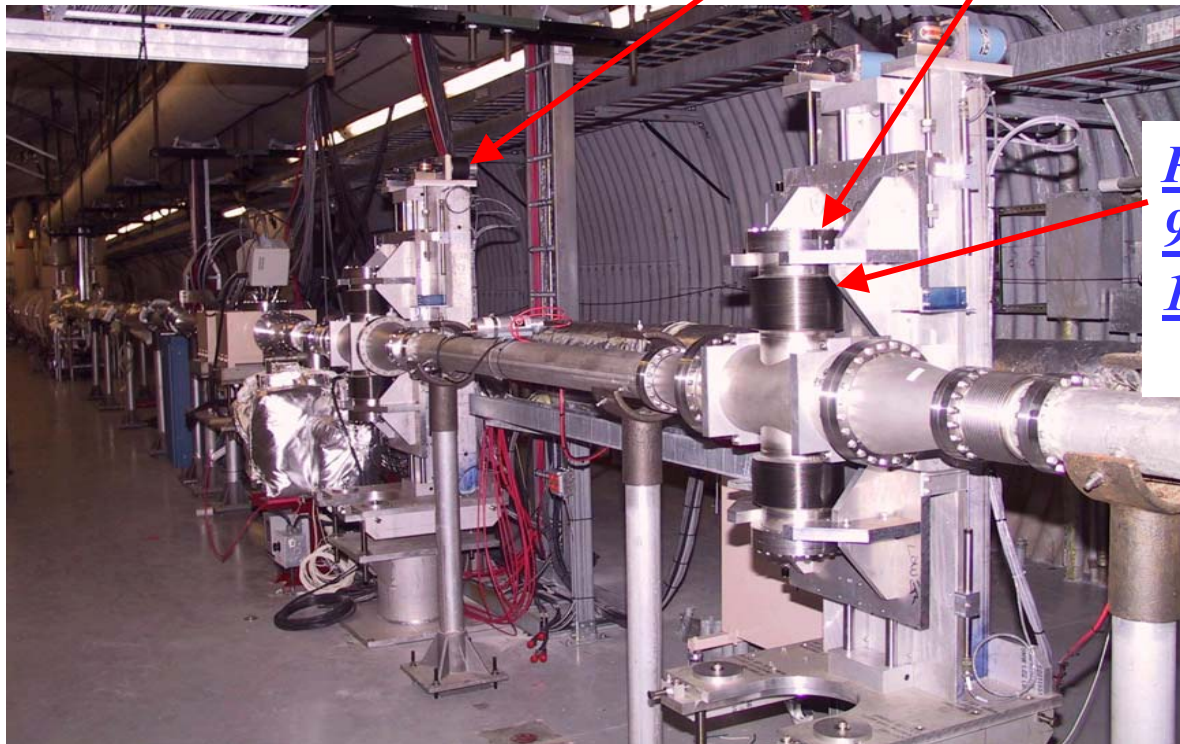
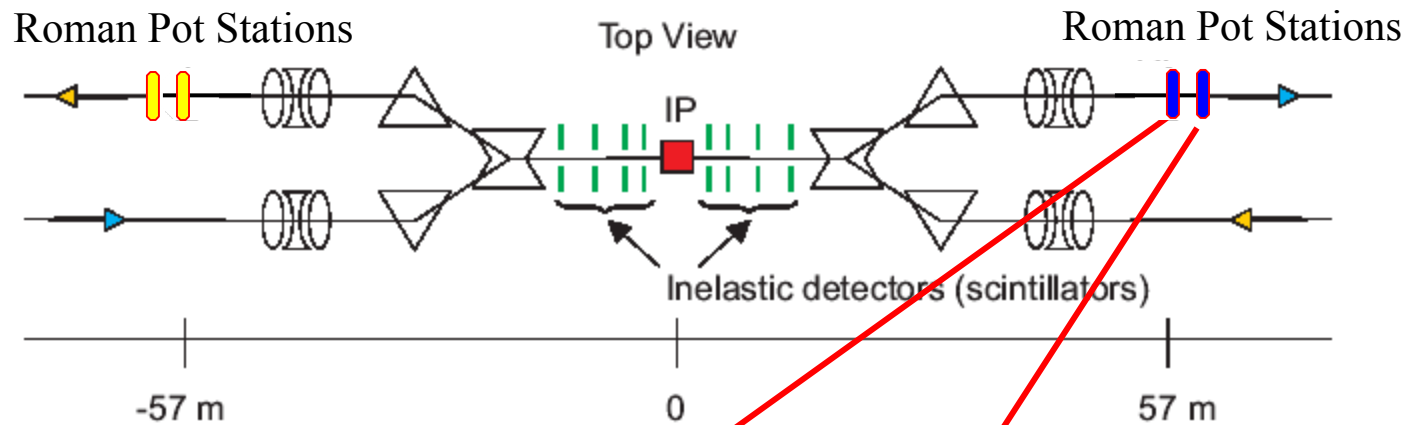


# RHIC Proposal- Sept 2003 Program Committee

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- **RP19** - *Spin Dependence in Proton-Proton Elastic Scattering at RHIC*  
BNL; INP, Poland; Palaiseau, France; Moscow, Russia; ITEP, Russia; Stony Brook; Arlington; INS, Poland  
Spokesperson: W. Guryn (BNL)

# pp2pp Experimental Setup in 2002-3 (and positions for PHASE I of RP19)



*Plan to rotate  
90 deg for phase I  
100 x 100 GeV*

# C-AD RP19 Impact Statement (1/6)

## RP19 - Spin Dependence in Proton-Proton Elastic Scattering at RHIC

**Spokespersons:** W. Guryn (BNL)

A. Rusek/Y. Makdisi

9/26/2003

**Institutions:** BNL; INP, Poland; Palaiseau, France; Moscow, Russia; ITEP, Russia; Stony Brook; Arlington; INS, Poland

**Summary:**

- Continuation of R7, declared complete at end of RHIC Run III
- A study of the spin dependence of pp elastic scattering at RHIC energies.
- Three phases proposed. Special beam conditions in phases I and III.

**IR** 2:00 O'CLOCK (pp2pp)

**Beam Requirements:**

Phase	I		II		III	
$\sqrt{s}$ (GeV)	200	500	200	500	200	500
$\beta^*$ (m)	20	10	2-3	2-3	100	100
$L$ (1/(cm <sup>2</sup> s))	$3 \times 10^{28}$	$1 \times 10^{29}$	$5 \times 10^{30}$	$5 \times 10^{30}$	$2 \times 10^{28}$	$2 \times 10^{28}$
dedicated run time (days)	3	3			3	3
concurrent run time (hrs)			70*	70*		

\* plan to run concurrent with Star and Phenix with about a 30 % reduction in luminosity for all experiments  
run time is time at store

**Requested Schedule:**

2004 and beyond

**Possible Schedule (this example follows the STAR 5 year BUP, 27 week senereo):**

	$\sqrt{s}$ (GeV)/ $\beta^*(m)$	2004	2005	2006	2007	2008
• Phase I (Present Configuration)	200/20	X				
• Phase I (IPM and Kicker Removed)	200/20		X			
• Phase II (new RP's)	200/3			X		
• Phase III (70 m RP's)	200/100				X	
• Phase I (Present Configuration)	500/10					
• Phase II (new RP's)	500/3					X
• Phase III (70 m RP's)	500/100					X



## *C-AD RP19 Impact Statement (2/6)*

### *Some Issues:*

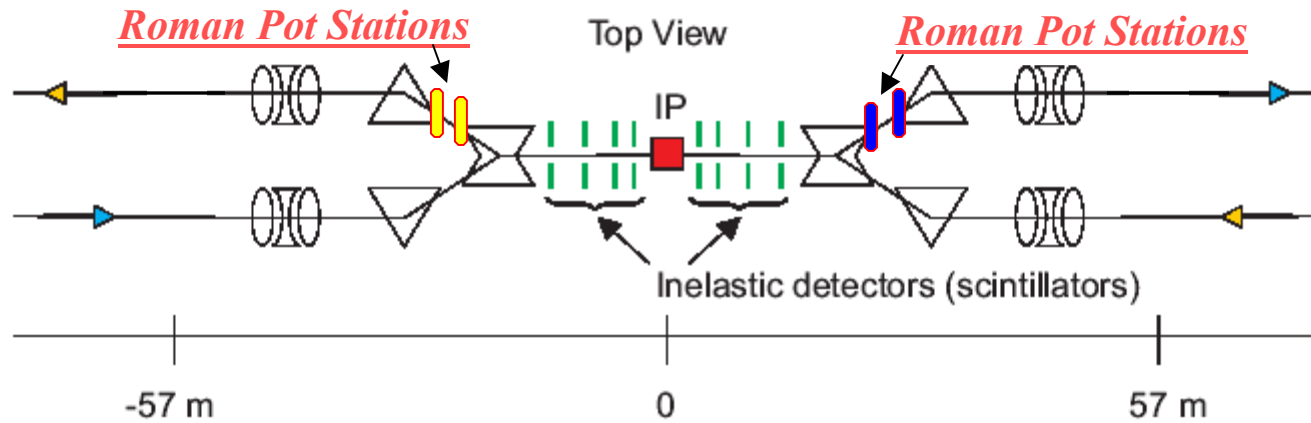
- Phase I (100x100 GeV):
  - One RP on each side will be turned 90 deg to horizontal configuration – Labor
  - Requesting removal (option b) of IPM and kicker apparatus which cut acceptance by ~40% - Materials & Labor – prepared to run without removals if \$'s not available (option a)
  
- Phase II:
  - Installing 4 new RP's in the DX-D0 regions - Labor & \$'s, vacuum chambers and new RP stations
  - Plan to run concurrent with STAR and PHENIX results in ~ 30% reduction in Luminosity to all (beam-beam interaction problem)
  
- Phase III:
  - Move 4 RP's to new locations, new power supplies and quench protection - Materials & Labor, \$'s
  
- Safety Systems:
  - Moving to new locations will incur minimal costs

# C-AD RP19 Impact Statement (3/6)

<b>PHASE I, 100x100 GeV: Assumptions (at 20 meter <math>\beta^*</math>)</b>							
<b>Option a: Restricted aperture</b>							
• one RP station in each arm is rotated 90 deg							
<b>Option b:</b>							
• one RP station in each arm is rotated 90 deg							
• Kicker and IPM moved to different location							
<b>C-AD Cost for phase I (100 GeV) option a:</b>							
	<b>Purchases</b>	<b>Shops</b>	<b>EDIA</b>	<b>Techs</b>	<b>Trades</b>	<b>Total</b>	
• Change orientation on 1 RP per arm			5	12	0	\$ 7,075	
• Subtotal	\$ -	\$ -	\$ 2,449	\$ 4,626	\$ -	\$ 7,075	
• Contingency (20%)	\$ -	\$ -	\$ 490	\$ 925	\$ -	\$ 1,415	
• Total Direct Cost	\$ -	\$ -	\$ 2,939	\$ 5,551	\$ -	\$ 8,490	
• Indirect Cost (approximate)	\$ -	\$ -	\$ 2,542	\$ 4,802	\$ -	\$ 7,343	
• Total Cost with indirect	\$ -	\$ -	\$ 5,480	\$ 10,353	\$ -	\$ 15,833	
• C-AD Labor Rebate (if available)						\$ 15,833	
• Net Cost with indirect running with Restricted aperture						\$ -	
<b>Impact On C-AD Resources</b>	<b>Low</b>						



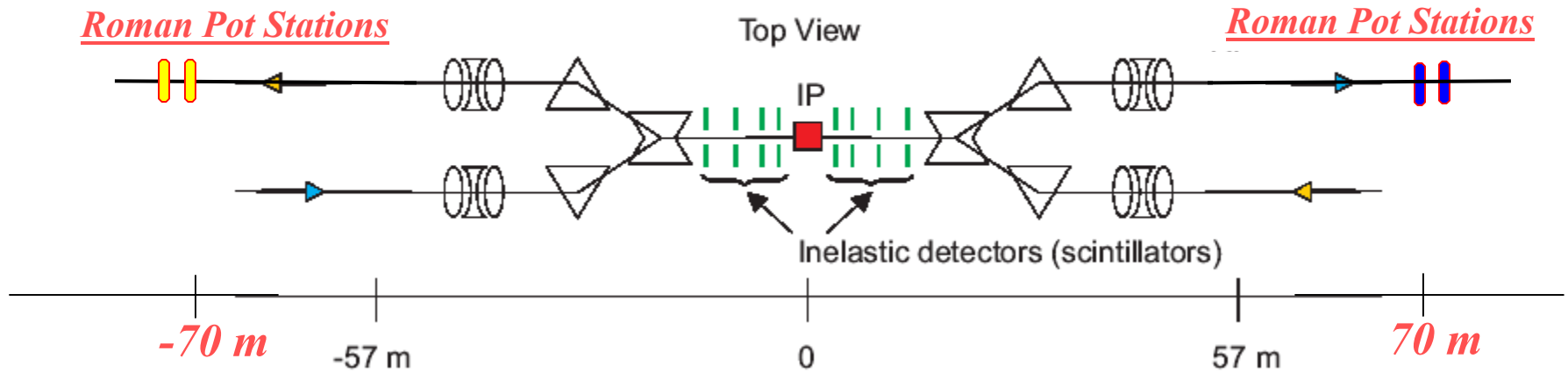
## pp2pp Experimental Setup for PHASE II



## C-AD RP19 Impact Statement (5/6)

<b>PHASE II, 100x100 and 250x250 GeV: Assumptions</b>							
• RP stations have vertical orientation							
• 2-3 meter $\beta^*$							
<b>C-AD Capital Costs for phase 2 (100 &amp; 250 GeV)</b>	<b>Purchases</b>	<b>Shops</b>	<b>EDIA</b>	<b>Techs</b>	<b>Trades</b>	<b>Total</b>	
			(mandays)	(mandays)	(mandays)		
• DX-D0 vacuum modifications	\$ 100,000	\$ -	45	35	0	\$ 100,000	
• RP Stations (4)*	\$ 160,000					\$ 160,000	
• Subtotal	\$ 260,000	\$ -	\$ 22,039	\$ 13,493	\$ -	\$ 295,532	
• Contingency (20%)	\$ 52,000	\$ -	\$ 4,408	\$ 2,699	\$ -	\$ 59,106	
• Total Direct Cost	\$ 312,000	\$ -	\$ 26,447	\$ 16,192	\$ -	\$ 354,639	
• Indirect Cost (approximate)	\$ 53,190	\$ -	\$ 22,875	\$ 14,005	\$ -	\$ 90,069	
• Total Cost with indirect	\$ 365,190	\$ -	\$ 49,322	\$ 30,197	\$ -	\$ 444,708	
• C-AD Labor Rebate (if available)						\$ 79,518	
• Net Cost with indirect						\$ 365,190	
* the cost of new RP stations may be assumed by collaborators							
<u>Impact On C-AD Resources</u>	Moderate						

## pp2pp Experimental Setup for PHASE III



**PHASE III, 100x100 GeV: Assumptions**

- RP stations have vertical orientation
- 100 meter  $\beta^*$

# *C-AD RP19 Impact Statement (6/6)*

C-AD Capital Costs for phase 3 (100 GeV) :	Purchases	Shops	EDIA (mandays)	Techs (mandays)	Trades (mandays)	Total
• 4-2000 A PS's	\$ 108,000			150		\$ 165,600
• 4 Quench Protection Assemblies	\$ 80,000			50		\$ 99,200
• AC Switchgear work (contract labor)	\$ 80,000		3			\$ 81,488
• Subtotal	\$ 268,000	\$ -	\$ 1,469	\$ 77,104	\$ -	\$ 346,573
• Contingency (20%)	\$ 53,600	\$ -	\$ 294	\$ 15,421	\$ -	\$ 69,315
• Total Direct Cost	\$ 321,600	\$ -	\$ 1,763	\$ 92,525	\$ -	\$ 415,888
• Indirect Cost (approximate)	\$ 54,826	\$ -	\$ 1,525	\$ 80,027	\$ -	\$ 136,378
• Total Cost with indirect	\$ 376,426	\$ -	\$ 3,288	\$ 172,551	\$ -	\$ 552,266
• C-AD Labor Rebate (if available)						\$ 175,840
• Net Cost with indirect						\$ 376,426

Impact On C-AD Resources Moderately High

**PHASE III, 250x250 GeV: Assumptions**

- RP stations have vertical orientation
- 100 meter  $\beta^*$

C-AD Capital Costs for phase 3 (250 GeV) :	Purchases	Shops	EDIA (mandays)	Techs (mandays)	Trades (mandays)	Total
• 2- 600 A PS's	\$ 46,000			150		\$ 103,600
• 2 Quench Protection Assemblies	\$ 34,000			50		\$ 53,200
• Subtotal	\$ 80,000	\$ -	\$ -	\$ 77,104	\$ -	\$ 157,104
• Contingency (20%)	\$ 16,000	\$ -	\$ -	\$ 15,421	\$ -	\$ 31,421
• Total Direct Cost	\$ 96,000	\$ -	\$ -	\$ 92,525	\$ -	\$ 188,525
• Indirect Cost (approximate)	\$ 16,366	\$ -	\$ -	\$ 80,027	\$ -	\$ 96,393
• Total Cost with indirect	\$ 112,366	\$ -	\$ -	\$ 172,551	\$ -	\$ 284,918
• C-AD Labor Rebate (if available)						\$ 172,551
• Net Cost with indirect						\$ 112,366

Impact On C-AD Resources Moderately High

# Supplementary Material

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# C-A Experiments (as of July 2003)

## RHIC Experiments

BRAHMS (HI)	BNL/Bucharest/Jagellonian/Johns Hopkins/Fysisk Inst – Bergen/Kansas/Oslo/U. Copenhagen/ NYU/Texas A&M	Broad <u>R</u> ange <u>H</u> adron <u>M</u> agnetic Spectrometers Experiment at RHIC
PHENIX (HI & PP)	ACU/Academia Secina/Alabama-Huntsville/Banaras Hindu U/BARC/BNL/CIAE/CAL- Seoul/DAPNIA/IPN-Orsay/Kangnung/LPC Clermont/LLR Palaiseau/Seoul National/SUBATECH/Columbia/CNS-Tokyo/FSU/GSU/Hiroshima/HEP-Protvino/ Iowa State/JINR-Dubna/KEK/Korea/Kurchatov Inst/Kyoto/LANL/LLNL/Lund/McGill/ Muenster/Myong Ji/Nagasaki Inst. of Applied Science/UNM/New Mexico State/ORNL/PNPI/RIKEN/ UC-Riverside/San Paolo/SUNY-SB/ Tennessee/Tokyo/Tokyo Inst. of Tech./Tsukuba/Vanderbilt/Waseda/Weismann Inst/Yonsei	Pioneering <u>H</u> igh <u>E</u> nergy <u>N</u> uclear <u>I</u> nteracting <u>e</u> xperiment
PP2PP (PP)#	BNL/INPCracow/Ecole Polytechnique/MEPHI Moscow/ITEP Moscow/INS Warsaw/Moscow Eng/SUNY Stony Brook/U. Texas Arlington	Total and Differential Cross Sections, and Pol. Effects in pp Elastic Scat. at RHIC
PHOBOS (HI)	ANL/BNL/INP-Krakow/U.Krakow/MIT/NCU-Taiwan/U.Rochester/U. Ill-Chicago/ UM	An experiment to detect rare and unusual events (named for a moon of Mars)
STAR (HI & PP)	ANL/Beijing/Birmingham/Bhubaneswar/CALTECH/BNL/UC-Davis/UCLA/CMU/Creighton/ Dubna/Frankfurt/IU/IreS/Kent State/LBL/ Max Planck/MSU/Moscow Engr/NPI AS CR/Lanzhou/Jammu/NIKHEF/Indian Inst/Panjab/Rajasthan/Science & Tech China/Shangshi INR/Texas A&M/ CCNY/OSU/PSU/Protvino/Purdue/Rice/San Paulo/SSL/SUBATECH/UT-Austin/Tsinghua/Valparaiso/Kolkata/Warsaw U Tech/UW/Wayne S/Wuhan/Yale/Zagreb	Solenoidal <u>T</u> racker <u>A</u> t <u>R</u> HIC

## AGS Experiments

E926 SEB	BNL/INR-Moscow/UBC/U.Cincinnati/Kyoto U/U. New Mex/USB/Perugia/TJNAF/TRIUMF/Va. Poly/U. Va./Yale/U. Zurich	Measurement of $K^0_L \rightarrow \pi^0 \nu \bar{\nu}$
E927 SEB	BNL/UCLA/JINR/ACU/ANL/Az.U/Boskov/U.Colo/GWU/U.Karlsruhe/Kent/PNPI/ Regina/ Valparaiso	Measurement of the $K^+_{e3}$ decay rate and spectrum
E930 SEB	BNL/Hampton/KEK/NCA&T/Osaka/Tohoku/U.Tokyo	High-resolution $\gamma$ spectroscopy of hypernuclei using large acceptance germanium detector
E931 SEB#	Ariz/BNL/Carnegi-Mellon/CEBAF/C.Newport/ Colo/GWU/Houston/Kentucky/ LANL/La.Tech/ MD/MN/ NC A&T/Boskovic Inst/Texas-Austin/Tohoku U/UCLA/U.Zagreb	Study of the $\Delta I=1/2$ rule in the weak decay of S-shell hypernuclei
E940 SEB	Boston U/BNL/UC-Irvine/Houston/INR-Moscow/U. Mass-Amherst/NYU/Penn St/Purdue/Syracuse U./College Wm.Mary	Search for $\mu N \rightarrow e N$ with sensitivity below $10^{-16}$
E949 SEB	BNL/Ctr. For Subatomic Research –U.Alberta/FNAL/Fukui U/IHEP/INR-Moscow/JAERI/KEK/Natl. Def. Ac. of Japan/U. New Mexico/Osaka U/RCNP-Osaka/TRIUMF	An experiment to measure the branching ratio $B(K^+ \rightarrow \pi^+ \nu \bar{\nu})$
E951 FEB	ANL/BNL/CERN/FNL/LBNL/ORNL/Princeton U-J.H.Lab/SUNY Stony Brook	An R&D Program for Targetry and Capture at a Muon-Collider Source
E952 SEB	Boston U/BNL/NYU/Cornell/U. Heidelberg/U. Illinois/U. Mn/Yale	An Improved Limit on the Muon Neutrino Mass from Pion Decay in Flight
E953 SEB	Abilene Christian U/ANL/Ariz/G. Wash.U/Kent/PNPI/Rudjer Boskovic/UCLA/U.Colo/U.Karlsruhe/U.Md/U. Uppsala/Valparaiso	Neutral Hyperon Spectroscopy with the Crystal Ball
E961 SEB	Osaka Electro-Communications/KEK/Tokyo/BNL/CMU/Freiburg/Hampton/INR-Moscow/Kyoto/TRIUMF/Manitoba/UNM/Osaka/Pusan/Temple	A Search for Double Lambda Hypernuclei by Sequential Pion Decays
E962 FEB	Boston/BNL/BINP/Cornell/Fairfield/Heidelberg/III/LBL/LANL/ M.Planck/ MN/KEK/Riken/ Tokyo/Yale	A Precision Measurement of the Muon g-2 Value
E963 FEB#	Bechtal/LLNL/LANL	Proton Radiography at the AGS
E964 SEB	Gifu U/Kyoto U/Tohoku U./China Institute of Atomic Energy/Osaka City/Pusan National/Tokyo/BNL/CMU/UNM	Systematic Study of Double Strangeness System by an Emulsion Counter Hybrid Method
E966 NASA#	Alabama A&M/BNL/Case Western Reserve U/Colo U/Columbia U/John Hopkins Med. Inst/LBL/LANL/PNNL/Texas A&M U/U. Md/WSU	NASA Radiobiology







SEB-Slow Extracted Beam – Protons PP- Polarized Protons; NASA-0.6-1 GeV/c/nucleon Fe; FEB-Fast Extracted Beam, Protons  
# Completed in FY2003;

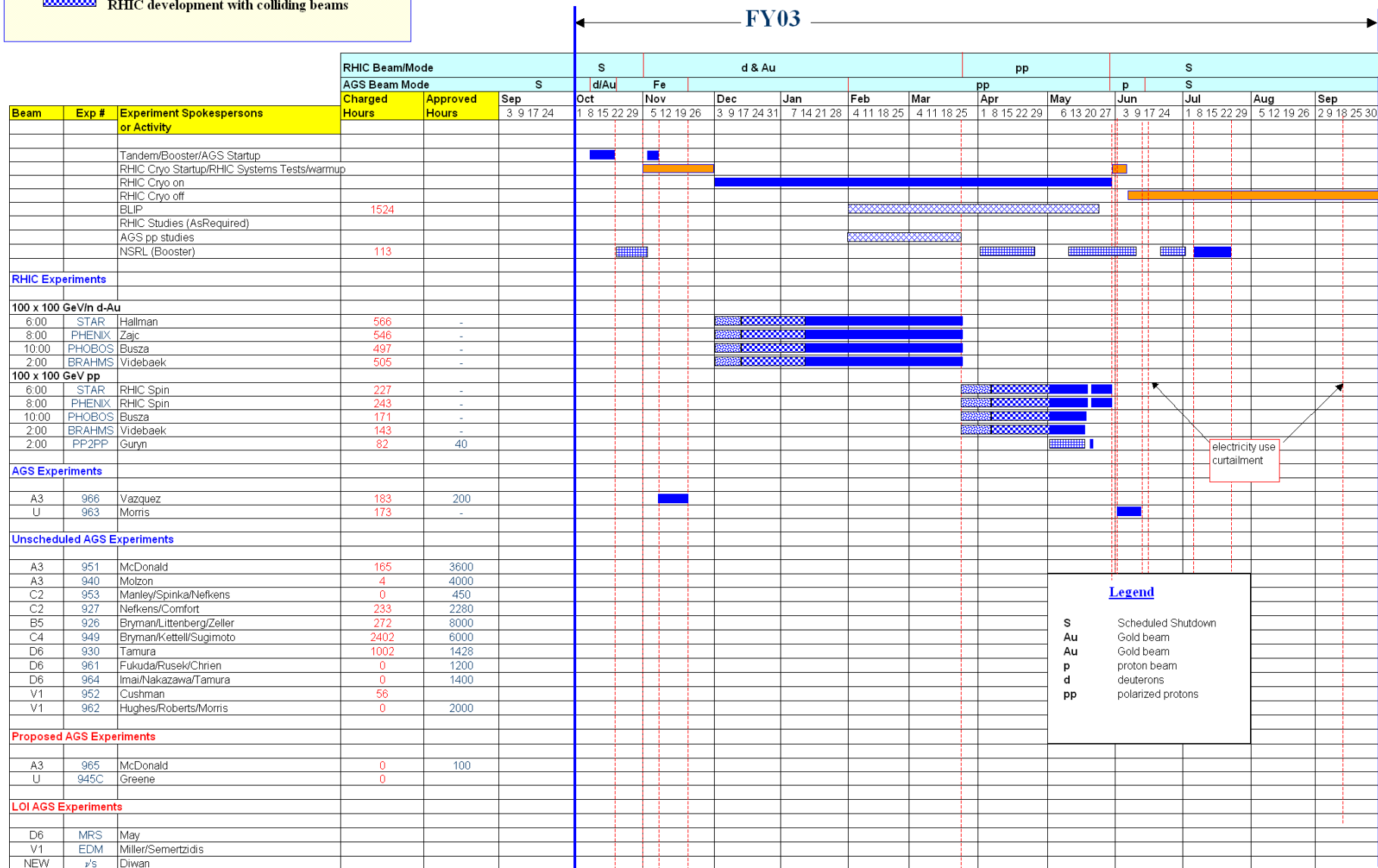
# Chronology of RHIC Run III (2002-2003)

- 1 Nov 02 - Cryo on
- 2 Dec 02 – Blue Ring Cold
- 3 Dec 02 – “2 week” d-Au setup w/o colliding beams begins (100 GeV/n x 100GeV/n)
- 9 Dec 02 – Yellow Ring Cold
- 23 Dec 02 – first collisions at store, “3 week” setup with colliding beams begins
- 12 Jan 03 – physics with 100 GeV/n x 100 GeV/n d-Au begins
- 24 Mar 03 – end of d-Au run
- 24 Mar 03 – begin “5 week” pp setup
- 23 Apr 03 – 6 hour beam experiments completed
- 3 May 03 – begin physics run
- 19 May 03 – begin pp2pp physics run @ ~ 2000 hrs
- 21 May 03 – end pp2pp run @ 2240 hrs
- 23 May 03 – BRAHMS and PHOBOS runs end, switch to 2 IR running condition
- 30 May 03 – 8 hour beam experiments (began @ 0800 hrs)
- 30 May 03 – 1600 hrs, end pp physics run/RHIC Run 3, cryo warm-up begins
- 3 June 03 – cryo warm-up ends, end of 31 weeks RHIC operations

# C-A as run schedule, fy2003

By: A. Rusek/P. Pile Date: 18 Sept 03

	Normal running
	Concurrent with RHIC operations
	Schedule to be determined
	Engineering/Commissioning
	Standby
	RHIC development with colliding beams



electricity use curtailment

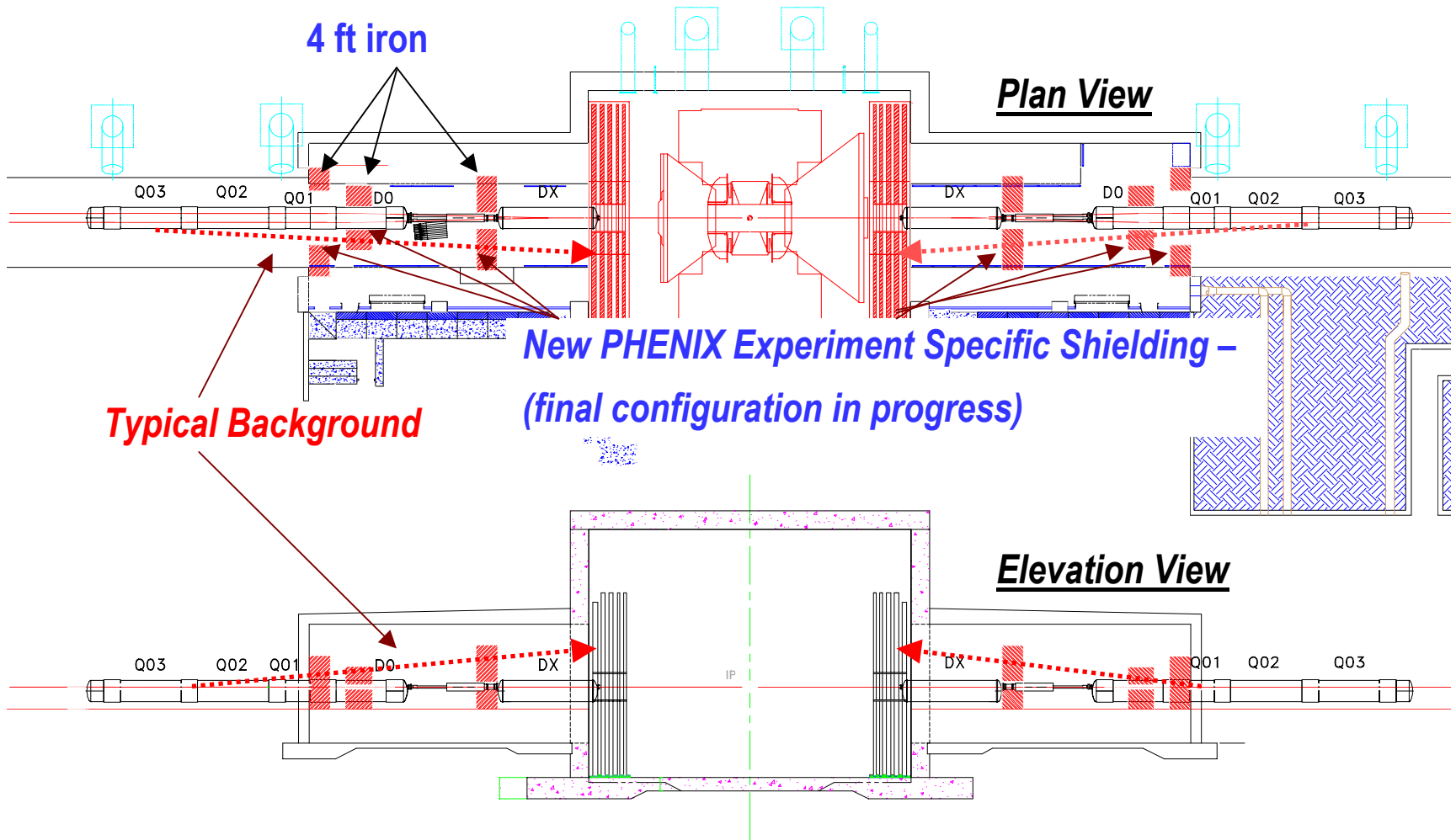
**Legend**

S Scheduled Shutdown  
 Au Gold beam  
 Au Gold beam  
 p proton beam  
 d deuterons  
 pp polarized protons



# *RHIC Experiment Shielding Working Group*

Kin Yip (and others) work in progress – the plan for PHENIX, in place before RUN IV begins



# The Polarized Jet Target (Y. Makdisi, July 2003)

Electronics racks

Vac. gauges monitors

Turbo pump controllers

Dissociator RF systems

Dissociator stage

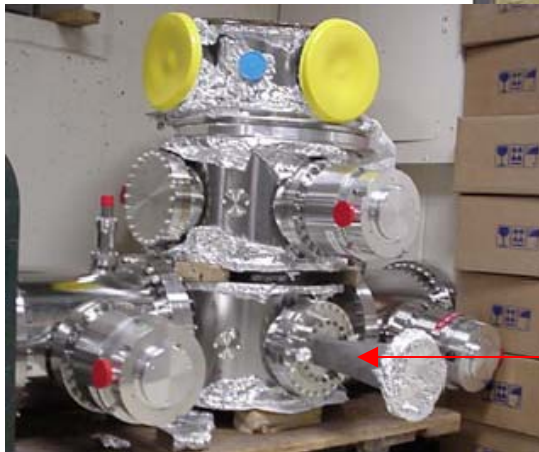
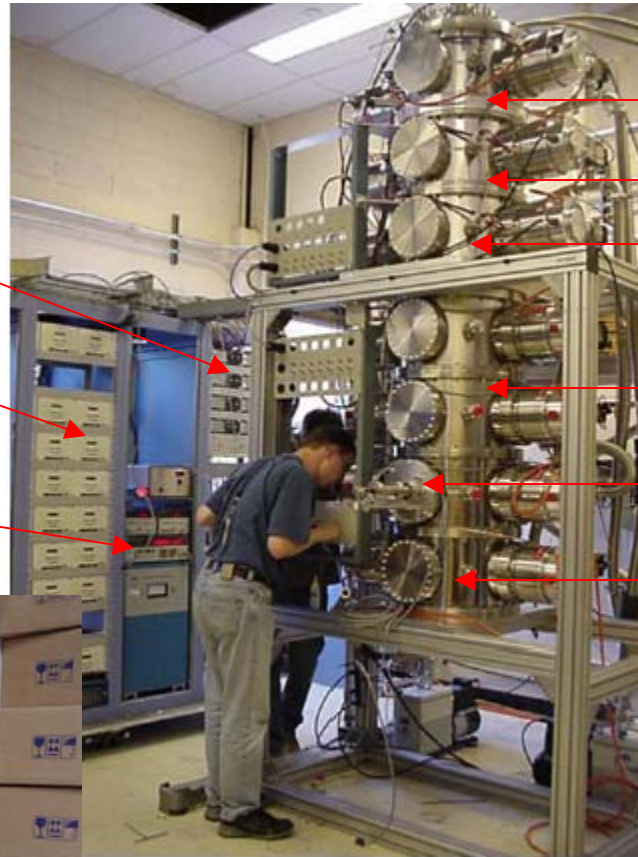
Baffle location

Sextupoles 1-4

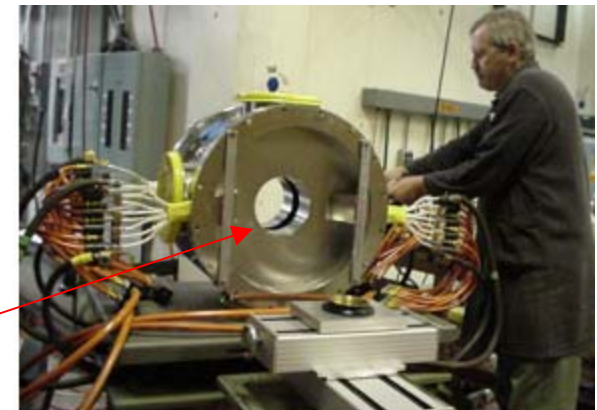
Sextupoles 5-6

Profile measurement

BRP vacuum vessel



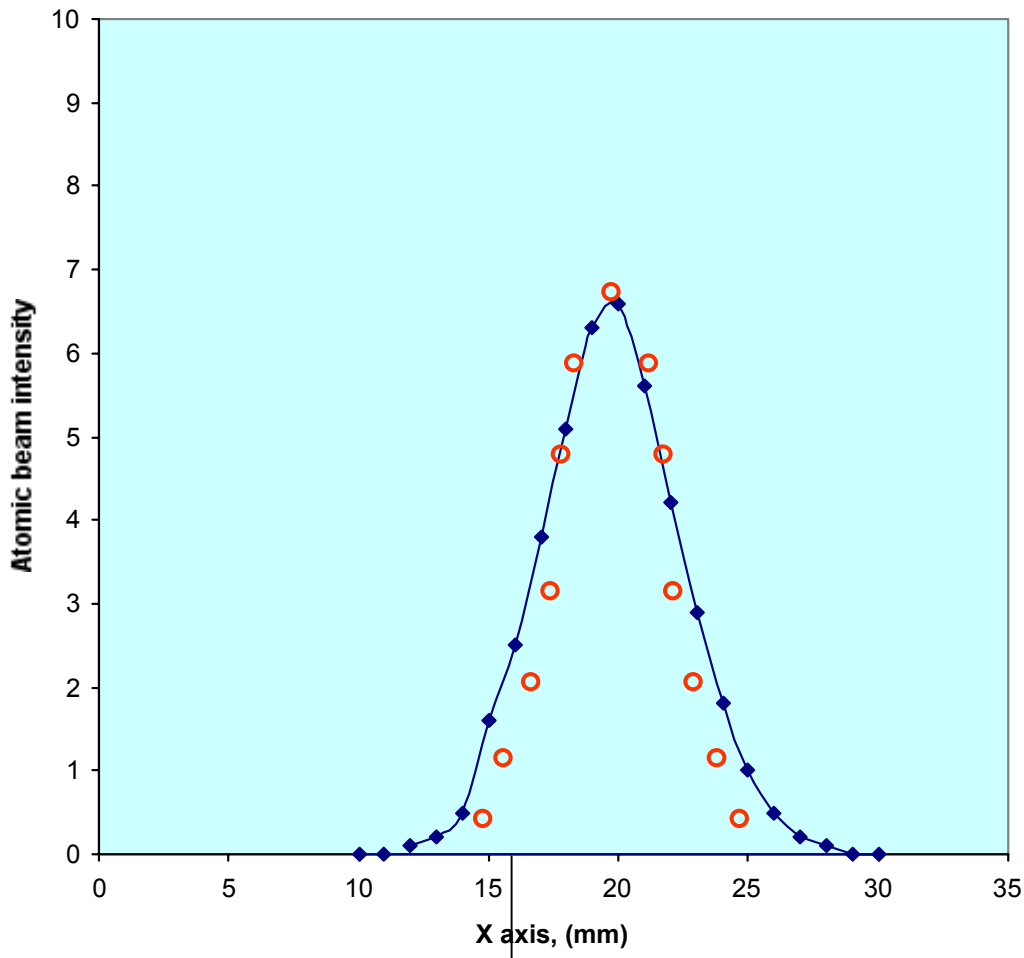
Target chamber &  
beam pipe adapters



Magnet ready  
for measurements

# Jet Target progress – July 2003 (Y. Makdisi)

Atomic beam profile at collision point



- 7/4/03 the profile measurement. The measured width (FWHM) is 5.8mm compared to the predicted width of 4.5 mm (including the effect of the finite probe diameter)
- 7/6/03 measured the beam intensity at  $5 \times 10^{16}$  atoms/ sec with a 9 mm compression tube.
- An estimate from the pressure rise gives  $\sim 9 \times 10^{16}$  atoms/sec
- Work on optimizing the jet parameters continues.



# AGS High Energy Physics Experiments - FY 2005+

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- **E949 – Rare K decay** (2338/6000 hrs)
  - Was approved (DOE) to run through FY 2003, however no funds for AGS HEP operations were identified in the FY2003 presidential budget request
  - Experiment needs two more long running years to complete goals
  - Proposal to NSF to run concurrent with RSVP beam studies
  
- **E951 - Muon Collider Target Studies**
  - Will continue subject to MCOG guidance and restoration of DOE HEP funding – However, once E940 beam line construction begins (2006?) the A3 beam will no longer be available
  
- **E952 - Muon Neutrino Mass (g-2 storage ring)**
  - Scientific approval from BNL, submitted to DOE for approval to run, will not be considered unless if DOE HEP funding for the AGS is restored. Could run parasitic to E949 once E962 is complete.
  
- **E962 – muon g-2** (Continuation of E821) 0/2000 hrs)
  - A request has been submitted to DOE to run this experiment, however the FY 2003 funding problem lead to no action at the DOE level
  
- **RSVP - Rare Symmetry Violating Processes**
  - *NSF Major Research Equipment (MRE) proposal (\$100M+); FY 06 construction start (possibly 2005)*
  - MECO, E940,  $\mu^- \rightarrow e^-$  conversion
  - K0P10, E926, Rare K decay  $K_L^0 \rightarrow \pi^0 \nu \nu$



# AGS High Energy Experiments - FY 2005+

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- **P965 – A3**, [1 week detector test (Submitted Aug 2002, deferred)]: *Proposal to Measure the Efficiency of Electron Charge Sign Determination up to 10 GeV in a Magnetized Liquid Argon Detector ( $\mu$ LANNDD)*  
BNL, UCLA, Texas, Zurich, Hawaii, Napoli, Pisa, Princeton  
McDonald (Princeton)
- **LOI – V1**, (g-2 storage ring) *Muon Electric Dipole Moment Experiment*, Boston, BNL, BINP, Cornell, Heidelberg, Illinois, Indiana, Yale  
Semertzidis (BNL), Miller (Boston)
- 
- **LOI – New Beam**, [neutrino oscillation experiment]: *Neutrino Physics with Detectors at Baselines of 100-1000 km from BNL*, BNL, UCLA, Texas, Zurich, Hawaii, Napoli, SUNY-SB, Pisa, Princeton  
Diwan (BNL)

# Medium Energy Experiments - FY 2005+

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## Crystal Ball (shipped to Mainz in 2003, possible return to BNL in 3-4 years)

- E927 - C2/D6, [233 (tests)/2280 hrs]: *Measurement of the  $K^+_{e3}$  decay rate and spectrum*, UCLA, JINR, ACU, ANL, Az.U, Boskov, U.Colo, GWU, U.Karlsruhe, Kent, PNPI, Regina, Valparaiso - **subject to final approval (technical issues)**  
Nefkens (UCLA), Comfort (Arizona)
- E953 - C2/D6, [0/450 hrs]: *Neutral Hyperon Spectroscopy with the Crystal Ball*, UCLA, JINR, ACU, ANL, Az.U, Rudjer Boskovic, U.Colo, GWU, Karlsruhe, Kent State, PNPI, Regina, Maryland, Uppsala, Valparaiso  
Manley (Kent State), Spinka (ANL), Nefkens (UCLA)
- EOI - D6, (Xstal Ball in D6) *Search for Lambda Radial Trajectory 1 (1/2-,3/2-)*,  
Peaslee (Maryland)

# Medium Energy Experiments - FY 2005+

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## D6 (2GeV) Beam Line

- \* E930 – D6, [1002/1428 hrs]: *High resolution spectroscopy of hypernuclei using large acceptance germanium detector*, Tokyo, Tohoku, Osaka, BNL, CMU, China Inst. Of Atomic Energy, Kyoto, Hampton, North Carolina A&T, Freiburg  
Tamura (Tohoku)
- \* E961 – D6, (continuation of E906 - CDS) [1200 hrs] *Search for Double- $\Lambda$  Hypernuclei by Sequential Pionic Decays*, Osaka Electro-Communication U, KEK, Tokyo, BNL, CMU, Freiburg, Hampton, INR-Moscow, Kyoto, TRIUMF, Manitoba, New Mexico, Osaka, Pusan National, Temple  
Fukuda (Osaka Electro-Communications), Rusek (BNL), Chrien (BNL)
- \* E964 – D6, [0/1400 hrs] Hybrid Emulsion, : *Systematic Study of Double Strangeness System by an Emulsion-Counter Hybrid Method*, BNL, CMU, Gifu, China Inst. Of Atomic Energy, Kyoto, UNM, Osaka City, Pusan, Tokoyu, Tokyo  
Imai (Kyoto), Tamura (Tokoyu), Nakazawa (Gifu)
- LOI – D6, (LANL MRS spectrometer for D6) *Double Strange Nuclei*, BNL, CMU, Houston, KEK, Tohoku  
May (BNL)

\* These experiments were proposed by physicists from Japan interested in bridging the gap between now and the time the Japanese Hadron Facility (a.k.a. JKJ) comes on line. Equipment funds for these experiments come from Japanese sources.

# Other AGS Experiments - FY2004 and beyond

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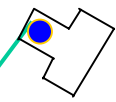
- **E966 – AGS Radiobiology** (*NASA*)
  - Completed last run in Nov 2002
  - Expect limited AGS use since NSRL is now operational
  - Next run probably in 2005
  - Facility will be displaced (move to D-line?) by E940 (2006?)
  
- **E963 – Proton Radiography** (*National Nuclear Security Administration - NNSA*)
  - Multiple bunch extraction studies in FY 2002-3 (successful)
  - Proposal for dynamic testing under discussion with BNL management

28 Sep 03

# AGS Experimental Area

*FY2005+ Physics Program-  
Major High Energy Experiments  
likely to run*

V1



V1,  $\pi \mu$  Beam Line

V-Target

U Line

RHIC Transfer Line

D-Target

A-Target

A3 – **RSVP** -MECO E940,  $\mu N \rightarrow eN$   
(NSF  $\leq$  2006 construction start)

C-Target

B-Target

B5 – **RSVP** - K0PI0  
E926,  $K_L^0 \rightarrow \pi^0 \nu \bar{\nu}$   
(NSF  $\leq$  2006 construction start)

C4-LESBIII  
(Submitted to NSF)  
E949,  $K^+ \rightarrow \pi^+ \nu \bar{\nu}$

