





REX/HIE-ISOLDE: Mode of operation for 2017 Beam Intensities

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BE-OP-ISO

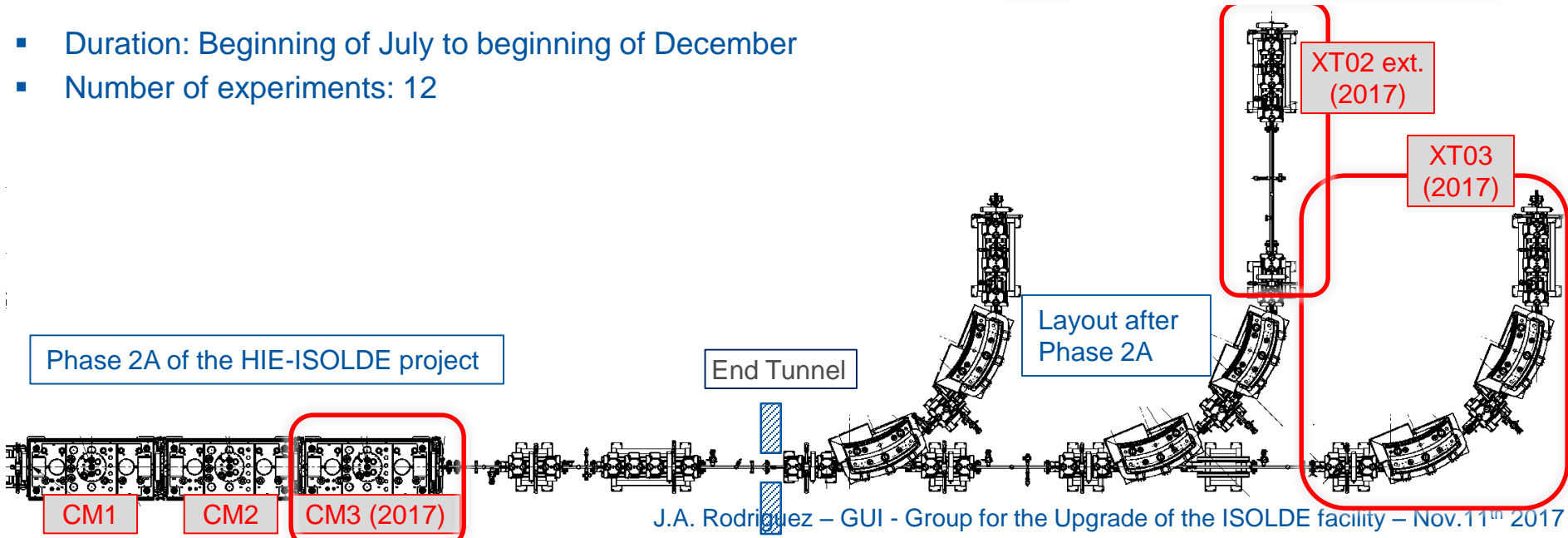
REX/HIE-ISOLDE Physics in 2017:



July						August			September				October				November			Dec								
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49					
	setting	#612 ZrO2-HP	#607 UC Ta	142Ba			#613 CaO					Tech stop				XT03												
#605 ZrO2	IS597 72Se @ 4.4MeV/u (IS626)	IS569 70Se @ 5.5MeV/u (IS612)	Stable tests if not ready for protons	IS553: 144Ba @ 4.1MeV/u	#608 Ta - GdB6	IS558 140Sm @ 4.65MeV/u	IS611 IS638 IS640	IS619 15C @ 4.3 MeV/u	IS619 15C @ 4.3 MeV/u	IS528* IS38/ISOL AP/RILIS JoJone	IS572 94Rb @ 6.3MeV/u	Tech stop	#609 Ta GdB6	IS546 @ 3.6 (or) 4.5MeV/u	IS585 IS5: IS636 IS647	IS561 9Li @ 7.3MeV/u	#619 Pb VD5	IS547 206Hg @ 4.1MeV/u IS515 IS585 IS602 IS640 (199Hg)	IS607 59Cu @ various; 64Cu for IS626	XT03	#513							
	Se (mol) beam	BaF beams	BaF beams				Sm RILIS	Cd beams	15C		Dy RILIS	Rb beams		Nd RILIS		Cd beams	Li beams	Hg beams	Cu RILIS									

July						August			September				October	November				Dec										
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49					
	Tech stop	TISD/tape	IS592 or TISD (tape)	#596 CaO								Tech stop				#620 LaC												
IS574					IS601	#610 UC CP	IS490	#617 UC-n Ta		JoJone	Reuse #595	Tech stop	#595 UC-n	CRIS	IS571	IS62 108In @ 4.4MeV/u		IS573 121-136Sn										
					35Ar		98Kr/48Ar				NI RILIS	Na beams				Ga RILIS		Sn RILIS										

- Duration: Beginning of July to beginning of December
- Number of experiments: 12



REX/HIE-ISOLDE Operations:

Alternating high and low energy physics:

- GPS for HIE-ISOLDE physics preferred
- Target installed on Friday, set-up Monday to Thursday, beam to users Thursday evening (earlier if lasers are not needed), Friday contingency
- Monday beam characterization and isotope/energy change if needed
- Target would reach its expected lifetime on Wednesday morning

- ✓ Ten out of twelve used or will use GPS
- ✓ 4 targets installed on Fri or earlier, 3 on Mon
- ✓ Beam to users Thursday or earlier (9/10)
- ✓ Beam typically characterized on Friday
- ✓ Only one target failed after ~8E18 protons

	HRS										GPS										HIE			
	08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30				
Fr	-----					LE Physics					Target Installation					Pumping/Heating								
Sa	LE Physics										Pumping/Heating										Stable			
Su	LE Physics										Pumping/Heating										Stable			
Mo	LE Physics										Separator Set-Up					RILIS Set-up								
Tu	-----					LE Physics					CA0	p-Scan			Target yields				CA0					
Wd	-----					LE Physics					CA0	TRAP/EBIS Set-Up						CA0						
Th	-----										CA0	EBIS Set-Up			RIB to linac			HIE Physics						
Fr	Target Installation					Pumping/Heating					-----					HIE Physics					RIB			
Sa	Pumping/Heating										HIE Physics										RIB			
Su	Pumping/Heating										HIE Physics										RIB			
Mo	Separator Set-Up					-----					RIB Charact.					HIE Physics					RIB			
Tu	-----										HIE Physics (16.25 shifts, 5.3E18)										RIB			
Wd	-----										HIE Physics (19.25 shifts, 6.2E18)										RIB			
Th	CA0	p-Scan		Target yields				LE Physics				-----												
Fr	-----					LE Physics					Target Installation					Pumping/Heating								
Sa	LE Physics										Pumping/Heating										Stable			
Su	LE Physics										Pumping/Heating										Stable			
Mo	LE Physics										Separator Set-Up					RILIS Set-up								
Tu	-----					LE Physics					CA0	p-Scan			Target yields				CA0					
Wd	-----					LE Physics					CA0	TRAP/EBIS Set-Up						CA0						
Th	-----										CA0	EBIS Set-Up			RIB to linac			HIE Physics						
Fr	Target Installation					Pumping/Heating					-----					HIE Physics					RIB			
Sa	Pumping/Heating										HIE Physics										RIB			
Su	Pumping/Heating										HIE Physics										RIB			
Mo	LE Physics										Separator Set-Up					RILIS Set-up								
Tu	-----					LE Physics					CA0	p-Scan			Target yields				CA0					
Wd	-----					LE Physics					CA0	TRAP/EBIS Set-Up						CA0						
Th	-----										CA0	EBIS Set-Up			RIB to linac			HIE Physics						
Fr	Target Installation					Pumping/Heating					-----					HIE Physics					RIB			
Sa	Pumping/Heating										HIE Physics										RIB			
Su	Pumping/Heating										HIE Physics										RIB			

	Shifts	%
HIE Physics	19.3	45.8
LE Physics	17.0	40.5
Targets	2.8	6.5
REX/HIE	1.8	4.2
LE to HIE to LE	0.5	1.2
CA0 + p-Scan	0.8	1.8
Total	42.0	100
RILIS	0.6	1.5
Separators	1.6	3.9
REX/HIE	5.0	11.9
HIE Stable Phys.	8.0	19.0



REX/HIE-ISOLDE Operations:

Alternating high and low energy physics:

- Low energy physics could start earlier if target fails before Thursday morning
 - Stable beam could be sent to the users during the weekends
 - In total, we could expect to run ~ 10 high energy experiments in this mode
 - In addition, during the 21 weeks:
 - High energy stable beam: ~ 50 shifts of high energy stable beam could be possible
 - Low energy physics: ~ 100-150 shifts could be feasible
- ✓ Multiple alternating or in parallel low-energy experiments completed
 - ✓ 350 hours of stable beam already delivered
 - ✓ Ten experiments already completed (1200 hours)
 - ✓ Two more scheduled

	HRS										GPS										HIE			
	08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30		Shifts	%	
Fr	-----					LE Physics					Target Installation					Pumping/Heating								
Sa	LE Physics										Pumping/Heating										Stable			
Su	LE Physics										Pumping/Heating										Stable			
Mo	LE Physics										Separator Set-Up					RILIS Set-up								
Tu	-----					LE Physics					CA0	p-Scan			Target yields				CA0					
Wd	-----					LE Physics					CA0	TRAP/EBIS Set-Up						CA0						
Th	-----										CA0	EBIS Set-Up			RIB to linac			HIE Physics						
Fr	Target Installation					Pumping/Heating					-----					HIE Physics					RIB			
Sa	Pumping/Heating										HIE Physics										RIB			
Su	Pumping/Heating										HIE Physics										RIB			
Mo	Separator Set-Up					-----					RIB Charact.					HIE Physics					RIB			
Tu	-----										HIE Physics (16.25 shifts, 5.3E18)										RIB			
Wd	-----										HIE Physics (19.25 shifts, 6.2E18)										RIB			
Th	CA0	p-Scan		Target yields				LE Physics				-----												
Fr	-----					LE Physics					Target Installation					Pumping/Heating								
Sa	LE Physics										Pumping/Heating										Stable			
Su	LE Physics										Pumping/Heating										Stable			
Mo	LE Physics										Separator Set-Up					RILIS Set-up								
Tu	-----					LE Physics					CA0	p-Scan			Target yields				CA0					
Wd	-----					LE Physics					CA0	TRAP/EBIS Set-Up						CA0						
Th	-----										CA0	EBIS Set-Up			RIB to linac			HIE Physics						
Fr	Target Installation					Pumping/Heating					-----					HIE Physics					RIB			
Sa	Pumping/Heating										HIE Physics										RIB			
Su	Pumping/Heating										HIE Physics										RIB			
													RILIS		0.6	1.5								
													Separators		1.6	3.9								
													REX/HIE		5.0	11.9								
													HIE Stable Phys.		8.0	19.0								
													Total		42.0	100								

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS597 & IS659:

- Light isotope but very difficult molecular beam:
 - Very demanding for the target team and difficult set-up of the separator, REX-TRAP and REX-EBIS
 - Not difficult beam for the linac
- IS597 started one day late
- Originally one target for the two experiments. A second target installed to improve the SeCO production
- 32S68Ge and 32S66Ge contaminant dominated the beam
- 72Se rates going down by a factor two every ~12 hours → IS597 stopped before scheduled
- IS659 decided to take 66Ge instead of 70Se after one night of beam

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS553:

- Set-up went very well. Beam delivered ahead of scheduled
- Target failed after ~8E18 protons well passed its expected lifetime
- Users didn't have a chance to measure one of isotopes at one of the originally planned energies
- Some isobaric contaminants reported by the users

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS558:

- Target installed a lot sooner than originally planned
- Set-up went very well. Beam delivered ahead of scheduled
- Lost first night due to the loss of LHe in CM1
- Beam intensity: ~2E6 pps (higher than originally expected!)
- Accumulated enough statistics before the end of the week. Users requested to change isotopes on Friday, but stable contaminants too high and returned to original plan.

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS619:

- Radioactive beam ready before experimental station
- Two days delay start because of problems with the diagnostics of the experimental station. We should have been debugged this sooner using stable beam (experimental station not available before)

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS572:

- Radiation alarms in the hall limited the amount of beam delivered to the users
- Run at a reduced proton beam current (~0.2-0.5 uA) to limited the produced 94Rb

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS546:

- Set-up of the machine went well. Ready ahead of time.
- 140Sm contaminant dominant for mass 140. Not enough 140Nd
- Users decided to change to 142Sm (second part of their proposal)
- Beam intensities 142Sm: ~1E6 pps
- Operated at a reduced proton current (~ 0.5 uA) due to limitations in the acceptable rates at Miniball
- Gave a second chance to 140Nd after target and RILIS re-optimazation (x20 higher rates)
- Operated at a reduced proton current (~ 0.2 uA) due to limitations in the acceptable rates at Miniball

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS562:

- Additional time to set up RILIS needed on Friday after the experiment started (108In contamination originally present)
- Run at a lower proton current than possible (limited by the acceptable RIB rates at Miniball)
- Beam intensities at Miniball: ~3E6 pps (limited by the acceptable RIB rates at Miniball)

REX/HIE-ISOLDE Operations:



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Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS561:

- Radioactive beam ready before experimental station
- Experiment started one day late because of problems with the diagnostics of the experimental station. Could have been debugged sooner using stable beam.
- Multiple trips of two of the SRF cavities and several trips of REX IH structure (~15 hours of downtime)
- Beam intensity in their proposal: 1E6 pps at the scattering chamber
- Beam intensity at the experiment: ~1E5 pps

REX/HIE-ISOLDE Operations:



Experiment #	IS597	IS659	IS553	IS558	IS619	IS572	IS546	IS562	IS561	IS547	IS607	IS628
Isotopes	72Se19+	66Ge16+, 70Se17+	142Ba33+, 144Ba33+	140Sm34+	15C5+	94Rb23+	140Nd33+, 142Sm33+	108Sn26+	9Li3+	206Hg46+	59Cu20+	28Mg9+
Energies [MeV/u]	4.4	4.4	3.4, 4.2	4.65	4.35	6.21	4.62	4.5	8.04	4.19	3.6, 4.0, 4.3, 4.7, 5.0, 5.3	5.5
Target	GPS	GPS	GPS	GPS	GPS	GPS	GPS	HRS	GPS	GPS	GPS	HRS
HEBT	XT01	XT01	XT01	XT01	XT03	XT01	XT01	XT01	XT03	XT01	XT03	XT01
Target installation	Fri - AM	Wed - AM	Tue - PM	Mon - AM (-1)	Mon - AM	Mon - AM	Fri - AM	Tue - AM	Mon - AM	Fri - AM	Mon - PM	
Ionization	Molecular	Molecular	Molecular	RILIS	Molecular	Surface	RILIS	RILIS	RILIS Tried	RILIS	RILIS	RILIS
RIB ready					Thu - 14:30				Thu - 23:50			
RIB first delivery	Fri - 23:00 2017/07/07	Thu - 19:45 2017/07/13	Thu - 18:40 2017/07/20	Tue - 18:00 2017/08/08	Sat - 17:00 2017/08/26	Wed - 17:30 2017/09/13	Wed - 17:15 2017/09/27	Thu - 20:00 2017/10/12	Sat - 00:45 2017/10/21	Thu - 21:40 2017/11/02		

IS547:

- 206Pb contamination before lasers were used (~25% of the beam was 206Hg)
- Only stable contaminants from the charge breeder after lasers were used
- Shared beam time with SSP
- Beam intensity in their proposal: 1E6 pps at the Miniball
- Beam intensity at the experiment: ~0.6E6 pps

