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Construction Projects and Upgrades  
of Particle Accelerators

8<sup>th</sup> Edition

Information for Industry  
Collaborating in the Field of Particle Accelerators

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IPAC Conferences Coordinator for Europe



## **Introduction**

The European Physical Society Accelerator Group (EPS-AG), organizers of the IPAC series in Europe, has for many years contacted major laboratories around the world inviting them to provide information on future accelerator projects and upgrades, to be made available to exhibitors present at EPAC and later IPAC commercial exhibitions, and to those companies who have indicated interest.

The intention is to update this information as regularly as possible and to make it available to all exhibitors associated with JACoW accelerator conferences, and via the JACoW website ([jacow.org](http://jacow.org)).

The laboratories having contributed to the preparation of this 8th printed edition, prepared in connection with IPAC'15, are warmly thanked for their collaboration.

All of the information contained in this booklet is subject to confirmation by the laboratory and/or contact person whose name is entered for each project.

All other enquiries may be addressed to the  
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## **Project Region: North America, Central and South America**

### ***North America***

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Project Region: Asia

<b>ANSTO Centre for Accelerator Science</b>
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Project Location:	Australia, Sydney
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	1-Oct-09
Status of Contracting:	Buildings are complete and two new accelerators are constructed and currently being commissioned
Construction scheduled to start:	2010
Estimated Project Cost:	AUD \$21M
Estimated Construction Duration:	4 years
Type of Equipment to be Purchased:	1 MV tandem accelerator for accelerator mass spectrometry(AMS), 6MV tandem accelerator for ion beam analysis(IBA) and AMS, gas filled magnet beamline for AMS and actinides
Project Leader(s):	Prof David Cohen
Affiliation:	ANSTO
e-mail:	david.cohen@ansto.gov.au
Contact Person(s)	Prof David Cohen
Affiliation:	ANSTO
e-mail:	david.cohen@ansto.gov.au

Project Region: Asia

<b>Chinese Initiative Accelerator Driven System (CIADS)</b>
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Project Location:	People's Republic of China
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	
Status of Contracting:	Prototyping
Construction scheduled to start:	2017
Estimated Project Cost:	2.25 billion CNY
Estimated Construction Duration:	6 years
Type of Equipment to be Purchased:	Superconducting resonator, Solid state amplifier, Power supply, Niobium sheet, OFHC copper, Beam diagnostics, Integrated control system, RF control, Wire position monitor, Vacuum pump, Cryogenic valve, Superconducting current leads
Project Leader(s):	Hushan Xu
Affiliation:	Institute of Modern Physics, Chinese Academy of Sciences.
e-mail:	hushan@impcas.ac.cn
Contact Person(s)	Yuan He
Affiliation:	Institute of Modern Physics, Chinese Academy of Sciences.
e-mail:	hey@impcas.ac.cn

Project Region: Asia

<b>China Spallation Neutron Source (CSNS)</b>
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Project Location:	The People's Republic of China
Project Type:	New Project
Requirements List Available:	No
Approval Date:	28-Sep-08
Status of Contracting:	80% of the total workload for main facility buildings has been completed and RFQ accelerator is going
Construction scheduled to start:	3-Sep-11
Estimated Project Cost:	1.67 Billion Chinese Yuan supported by the Central Government
Estimated Construction Duration:	6.5 years
Type of Equipment to be Purchased:	80-MeV H <sup>-</sup> linac, a 1.6-GeV proton rapid cycling synchrotron (RCS), beam transport lines, a solid tungsten target station, and 3 initial instruments for the pulsed spallation neutron applications.
Project Leader(s):	Hesheng Chen
Affiliation:	Institute of High Energy Physics
e-mail:	chenhs@ihep.ac.cn
Contact Person(s)	Jingshi Zhao
Affiliation:	Dongguan Campus, Institute of High Energy Physics
e-mail:	zhaojs@ihep.ac.cn

Project Region: Asia

<b>High Energy Photon Source Test Facility (R&amp;D for HEPS)</b>
---

Project Location:	People's Republic of China
Project Type:	New Project
Requirements List Available:	No
Approval Date:	1-Jun-14
Status of Contracting:	start after the project approval
Construction scheduled to start:	expected to start 01-06-14
Estimated Project Cost:	50M USD
Estimated Construction Duration:	3 years
Type of Equipment to be Purchased:	Magnets Power supply BPM and electronics Fast feedback system Insertion devices Beamline optics component
Project Leader(s):	Jiang Xiaoming
Affiliation:	Institute of High Energy Physics
e-mail:	jiangxm@ihep.ac.cn
Contact Person(s)	Yu Meijuan
Affiliation:	Institute of High Energy Physics
e-mail:	Yumj@ihep.ac.cn

Project Region: Asia

<b>High Intensity Heavy Ion Accelerator Facility (HIAF) in China</b>
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Project Location:	People's Republic of China
Project Type:	New Project
Requirements List Available:	
Approval Date:	1-Jul-14
Status of Contracting:	Magnet Prototype
Construction scheduled to start:	expected to start at 01-Jan-2015
Estimated Project Cost:	400 million dollars
Estimated Construction Duration:	7-8 years
Type of Equipment to be Purchased:	Magnetic alloy loaded cavity, superferric magnet, something related with the control system, and so on
Project Leader(s):	Guoqing Xiao
Affiliation:	Institute of Modern Physics, Chinese Academy of Sciences.
e-mail:	xiaogq@impcas.ac.cn
Contact Person(s)	Jiancheng Yang
Affiliation:	Institute of Modern Physics, Chinese Academy of Sciences.
e-mail:	yangjch@impcas.ac.cn

Project Region: Asia

<b>Performance Enhancement of Indus-2 with Insertion Devices and Upgrade of Sub-Systems</b>
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Project Location:	India
Project Type:	Project Upgrade
Requirements List Available:	Yes
Approval Date:	14-Dec-12
Status of Contracting:	Under progress
Construction scheduled to start:	14-Dec-12
Estimated Project Cost:	
Estimated Construction Duration:	5 Years
Type of Equipment to be Purchased:	Insertion Devices    Vacuum Pumps Vacuum components
Project Leader(s):	TBA
Affiliation:	Raja Ramanna Centre for Advanced Technology
e-mail:	TBA
Contact Person(s)	Mr. Purushottam Shrivastava
Affiliation:	Raja Ramanna Centre for Advanced Technology
e-mail:	purushri@rrcat.gov.in

Project Region: Asia

<b>R&amp;D Activities for High Energy Proton Linac based Spallation Neutron Source</b>
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Project Location:	India
Project Type:	New Project
Requirements List Available:	No
Approval Date:	14-Dec-12
Status of Contracting:	Under progress
Construction scheduled to start:	14-Dec-2012
Estimated Project Cost:	
Estimated Construction Duration:	7 years
Type of Equipment to be Purchased:	CNC machines, Vacuum pumps & components, RF/Microwave equipment, semiconductor devices, Electronic equipment, Beam diagnostic devices and components, Measuring instruments, High voltage high stability power supplies, High voltage components & switching devices, Superconducting materials, Brazing furnaces, Clean room comonents & devices, High power RF/Microwave components & devices, Magnetic core materials, Special raw materials
Project Leader(s):	TBA
Contact Person(s)	Mr. Purushottam Shrivastava
Affiliation:	RRCAT
e-mail:	purushri@rrcat.gov.in

Project Region: Asia

<b>Superconducting Linacs for Electrons and Heavy-ions</b>
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Project Location:	India
Project Type:	New Project
Requirements List Available:	No
Approval Date:	11-Feb-13
Status of Contracting:	
Construction scheduled to start:	Ongoing
Estimated Project Cost:	1,13,00,000,00.00 Indian Rupees
Estimated Construction Duration:	Eight years
Type of Equipment to be Purchased:	Vacuum hardware (Pumps, gate valves, vacuum measurement units), DC magnets (dipoles, quadrupoles, solenoids) and their power supplies, SCQWR, SC solenoids, 650 MHz and 1.3 GHz SC elliptical cavities, RF Transmitters.
Project Leader(s):	Dr. Alok Chakrabarti
Affiliation:	Variable Energy Cyclotron Centre
e-mail:	alok@vecc.gov.in
Contact Person(s)	Mr. Sumit Som,
	Dr. Arup Bandyopadhyay,
	Dr. Arup Bandyopadhyay
Affiliation:	Variable Energy Cyclotron Centre (for everybody)
e-mail:	ssom@vecc.gov.in, arup@vecc.gov.in, vaishali@vecc.gov.in

Project Region: Asia



Project Region: Asia

**Technical Design Report and R&D for Advanced National Facility for Unstable & Rare Isotope Beams (ANURIB)**

Project Location:	India
Project Type:	New Project
Requirements List Available:	No
Approval Date:	7-Feb-14
Status of Contracting:	Some contracts are awarded and many more are to be awarded in future
Construction scheduled to start:	Ongoing
Estimated Project Cost:	71,45,00,000.00 Indian Rupees
Estimated Construction Duration:	Six years
Type of Equipment to be Purchased:	Vacuum hardware (Pumps, gate valves, vacuum measurement units), DC magnets (dipoles, quadrupoles, solenoids) and their power supplies.
Project Leader(s):	Dr. Alok Chakrabarti
Affiliation:	Variable Energy Cyclotron Centre
e-mail:	alok@vecc.gov.in
Contact Person(s)	Dr. Vaishali Naik,
Affiliation:	Dr. Arup Bandyopadhyay
e-mail:	Variable Energy Cyclotron Centre, Variable Energy Cyclotron Centre vaishali@vecc.gov.in, arup@vecc.gov.in

## Project Region: Asia

### **iBNCT project**

Project Location:	Japan
Project Type:	New Project
Requirements List Available:	
Approval Date:	24-Mar-11
Status of Contracting:	Collaboration Research
Construction scheduled to start:	24th March 2011
Estimated Project Cost:	approximately \$ 18 million
Estimated Construction Duration:	2011-2015
Type of Equipment to be Purchased:	Competitive funds
Project Leader(s):	Akira Matsumura
Affiliation:	University of Tsukuba Hospital
e-mail:	a-matsumur@md.tsukuba.ac.jp
Contact Person(s)	Hiroaki Kumada
Affiliation:	University of Tsukuba
e-mail:	kumada@pmrc.tsukuba.ac.jp

Project Region: Asia

<b>Spring-8 Upgrade</b>
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Project Location:	Japan
Project Type:	Spring-8 Project Upgrade
Requirements List Available:	
Approval Date:	
Status of Contracting:	
Construction scheduled to start:	
Estimated Project Cost:	
Estimated Construction Duration:	
Type of Equipment to be Purchased:	
Project Leader(s):	H. Tanaka
Affiliation:	SPring-8
e-mail:	tanaka@spring8.or.jp
Contact Person(s)	T. Ishikawa
Affiliation:	SPring-8
e-mail:	tishikawa@spring8.or.jp

Project Region: Asia

<b>SuperKEKB</b>
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Project Location:	Japan
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	
Status of Contracting:	near completion
Construction scheduled to start:	2010
Estimated Project Cost:	
Estimated Construction Duration:	five years
Type of Equipment to be Purchased:	
Project Leader(s):	Kazunori Akai, Haruyo Koiso
Affiliation:	KEK, High Energy Accelerator Research Organization
e-mail:	kazunori.akai@kek.jp, haruyo.koiso@kek.jp
Contact Person(s)	Kazunori Akai, Haruyo Koiso
Affiliation:	KEK, High Energy Accelerator Research Organization
e-mail:	kazunori.akai@kek.jp, haruyo.koiso@kek.jp

Project Region: Asia

<b>Synchrotron Light in Tohoku, Japan (SLiT-J)</b>
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Project Location:	Japan
Project Type:	New Project
Requirements List Available:	No
Approval Date:	
Status of Contracting:	-
Construction scheduled to start:	April, 2015
Estimated Project Cost:	300 M\$
Estimated Construction Duration:	3 years
Type of Equipment to be Purchased:	3 GeV storage ring (emittance < 1 nmrad, circumference ~ 350 m) 3 GeV c-band injector linac
Project Leader(s):	Hiroyuki Hama
Affiliation:	Tohoku University
e-mail:	hama@lns.tohoku.ac.jp
Contact Person(s)	Hiroyuki Hama
Affiliation:	Tohoku University
e-mail:	hama@lns.tohoku.ac.jp

Project Region: Asia

<b>J-PARC/MR</b>
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Project Location:	Japan, Tokai-village
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	
Status of Contracting:	unfixed
Construction scheduled to start:	Apr-16
Estimated Project Cost:	
Estimated Construction Duration:	3 years
Type of Equipment to be Purchased:	Power supplies for the pulse and pattern operation magnet of the proton synchrotron
Project Leader(s):	Tadashi Koseki
Affiliation:	KEK
e-mail:	tadashi.koseki@kek.jp
Contact Person(s)	Fujio Naito
Affiliation:	KEK
e-mail:	fujio.naito@kek.jp

Project Region: Asia

<b>RIBF Upgrade Project</b>
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Project Location:	Japan, Wako-shi, Saitama
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	
Status of Contracting:	
Construction scheduled to start:	
Estimated Project Cost:	
Estimated Construction Duration:	5 years
Type of Equipment to be Purchased:	
Project Leader(s):	Hideto En'yo
Affiliation:	RIKEN Nishina Center
e-mail:	enyo@riken.jp
Contact Person(s)	Osamu Kamigaito
Affiliation:	RIKEN Nishina Center
e-mail:	kamigait@riken.jp

Project Region: Asia

**PAL-XFEL Project**

Project Location:	Pohang, Republic of Korea
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	31-Dec-10
Status of Contracting:	building by POSCO E&C, Machine by PAL
Construction scheduled to start:	1-Apr-11
Estimated Project Cost:	400,000,000,000 Won (~ 400 Million US Dollars)
Estimated Construction Duration:	December 2015 (4 years 9 months)
Type of Equipment to be Purchased:	10 GeV linac (normal conducting S-band) Out-vacuum undulators, S-band Klystron S-band Accelerating structure S-band modulator
Project Leader(s):	In Soo Ko
Affiliation:	POSTECH
e-mail:	isko@postech.ac.kr
Contact Person(s)	In Soo Ko
Affiliation:	POSTECH
e-mail:	isko@postech.ac.kr



Project Region: Asia

<b>KHIMA (Korea Heavy Ion Medical Accelerator)</b>
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Project Location:	Republic of Korea
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	1-Apr-10
Status of Contracting:	Contract going on
Construction scheduled to start:	1-Apr-10
Estimated Project Cost:	About 195 MUSD
Estimated Construction Duration:	6 years
Type of Equipment to be Purchased:	Sextupole Magnet,      Quadrupole Magnet, Dipole Magnet, Scanning Magnet, ECRIS, RFQ, DTL, RF Cavity,      Vacuum Components Detectors
Project Leader(s):	Sang Hoon Nam
Affiliation:	KIRAMS(Korea      Institute      of Radiological And Medical Sciences)
e-mail:	nsh@kiram.s.re.kr
Contact Person(s)	Dr. Geun Beom KIM
Affiliation:	KIRAMS(Korea      Institute      of Radiological And Medical Sciences)
e-mail:	geun@kiram.s.re.kr

Project Region: Asia

**RAON**

Project Location:	Republic of Korea, Daejeon
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	20-Dec-11
Status of Contracting:	contracting
Construction scheduled to start:	20-Dec-11
Estimated Project Cost:	\$986M USD (excluding site cost)
Estimated Construction Duration:	10 years
Type of Equipment to be Purchased:	SC cavities, cryomodules, quadrupoles, ECR ion source, RFQ, SC magnets, vacuum system, solid state amps
Project Leader(s):	Dr. Sunchan Jeong
Affiliation:	Institute for Basic Science
e-mail:	scieong@ibs.re.kr
Contact Person(s)	Dong-O Jeon
Affiliation:	Institute for Basic Science
e-mail:	jeond@ibs.re.kr

Project Region: Asia

**The Development of Fully Solid-state 60 kW RF Transmitter**

Project Location:	Taiwan
Project Type:	New Project
Requirements List Available:	No
Approval Date:	
Status of Contracting:	Chaoen Wang
Construction scheduled to start:	
Estimated Project Cost:	
Estimated Construction Duration:	
Type of Equipment to be Purchased:	2kW power supply module, 1kW RF circulator, 1.2kW RF microstrip load, high power directional coupler, RF power combiner/divider
Project Leader(s):	Chaoen Wang
Affiliation:	National Synchrotron Radiation Research Center, RF group
e-mail:	rffwang@nsrrc.org.tw
Contact Person(s)	yu.tc@nsrrc.org.tw
Affiliation:	National Synchrotron Radiation Research Center, RF group
e-mail:	yu.tc@nsrrc.org.tw

Project Region: Europe

**MYRRHA**

Project Location:	Belgium, Mol
Project Type:	New Project
Requirements List Available:	No
Approval Date:	1-Jul-18
Status of Contracting:	Not started
Construction scheduled to start:	1-Jan-19
Estimated Project Cost:	300 M€ for the accelerator part
Estimated Construction Duration:	6 year
Type of Equipment to be Purchased:	RFQ, copper CH cavities, superconducting cavities and cryomodules, RF amplifiers, RF transmission lines, diagnostic equipment, controls equipment, vacuum equipment, magnets, refrigeration
Project Leader(s):	Hamid Aït Abderrahim
Affiliation:	SCK•CEN
e-mail:	haitabde@sckcen.be
Contact Person(s)	Dirk Vandeplassche
Affiliation:	SCK•CEN
e-mail:	dvandepl@sckcen.be

## Project Region: Europe

### **ELIMED**

Project Location:	Czech Republic
Project Type:	New Project
Requirements List Available:	No
Approval Date:	8-Dec-14
Status of Contracting:	Funded
Construction scheduled to start:	8-Dec-14
Estimated Project Cost:	2.5 M€
Estimated Construction Duration:	three years
Type of Equipment to be Purchased:	Permanent Magnet Quadrupoles & mechanics components, Resistive Dipoles (Energy Selector), Resistive Quadrupoles, Steering Magnets, Vacuum pumps & components, Electronic equipment, Beam diagnostic devices and components, Measuring instruments, High current/voltage high stability power supplies & components, control systems
Project Leader(s):	G.A. Pablo Cirrone and G. Cuttone
Affiliation:	INFN-LNS
e-mail:	pablo.cirrone@lns.infn.it
Contact Person(s):	G.A. Pablo Cirrone
Affiliation:	INFN-LNS
e-mail:	pablo.cirrone@lns.infn.it

Project Region: Europe

<b>ThomX</b>
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Project Location:	France
Project Type:	New Project
Requirements List Available:	No
Approval Date:	20-Jan-12
Status of Contracting:	
Construction scheduled to start:	1/1/14
Estimated Project Cost:	10000000
Estimated Construction Duration:	4 years
Type of Equipment to be Purchased:	All the components of the accelerator (magnets, klystron, modulator, RF cavity...) and the lasers for the photo-gun and the optical cavity
Project Leader(s):	Alessandro Variola
Affiliation:	Laboratoire de l'Accelérateur Lineaire, In2p3, CNRS
e-mail:	variola@lal.in2p3.fr
Contact Person(s)	Alessandro Variola
Affiliation:	Laboratoire de l'Accelérateur Lineaire, In2p3, CNRS
e-mail:	variola@lal.in2p3.fr

Project Region: Europe

**bERLinPro**

Project Location:	Germany
Project Type:	New Project
Requirements List Available:	No
Approval Date:	31-Oct-10
Status of Contracting:	Ongoing
Construction scheduled to start:	Started
Estimated Project Cost:	40 MEUR
Estimated Construction Duration:	6 years
Type of Equipment to be Purchased:	SRF Accelerating Cavities RF Sources Magnets Vacuum Components Diagnostics ...
Project Leader(s):	Prof. Dr. Andreas Jankowiak, Prof. Dr. Jens Knobloch
Affiliation:	Helmholtz-Zentrum Berlin
e-mail:	andreas.jankowiak@helmholtz- berlin.de, jens.knobloch@helmholtz- berlin.de
Contact Person(s)	Prof. Dr. Andreas Jankowiak, Prof. Dr. Jens Knobloch
Affiliation:	Helmholtz-Zentrum Berlin
e-mail:	andreas.jankowiak@helmholtz- berlin.de, jens.knobloch@helmholtz- berlin.de

Project Region: Europe

**FAIR**

Project Location:	Germany, Darmstadt
Project Type:	New Project
Requirements List Available:	
Approval Date:	4-Oct-10
Status of Contracting:	tendering
Construction scheduled to start:	2011
Estimated Project Cost:	1600 million euro
Estimated Construction Duration:	2019
Type of Equipment to be Purchased:	Superconducting                      Synchrotron, Fragment Separator,      Several normal conducting storage rings.
Project Leader(s):	Boris Sharkov
Affiliation:	FAIR
e-mail:	Boris.Sharkov@fair-center.eu
Contact Person(s)	Ingo Augustin
Affiliation:	FAIR
e-mail:	Ingo.Augustin@fair-center.eu



Project Region: Europe

<b>Superconducting Cyclotron for Light Ions with kW Power</b>
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Project Location:	Italy
Project Type:	Project Upgrade
Requirements List Available:	Yes
Approval Date:	30-Sep-15
Status of Contracting:	under evaluation (Executive Board of INFN)
Construction scheduled to start:	2016
Estimated Project Cost:	10.7 M€
Estimated Construction Duration:	3.5 years
Type of Equipment to be Purchased:	Superconducting Magnet consisting of a Cryostat and a pair of Superconducting Coils, Normal conducting Trim Coils, Magnetic channels, Cryo-coolers, Power supplies, Magnetic elements for beam transport, RF liner, Stripper system.
Project Leader(s):	Danilo Rifuggiato, Luciano Calabretta
Affiliation:	INFN Laboratori Nazionali del Sud, Via S. Sofia 62, 95123 Catania, Italy
e-mail:	rifuggiato@lns.infn.it, calabretta@lns.infn.it
Contact Person(s)	Danilo Rifuggiato
Affiliation:	INFN Laboratori Nazionali del Sud, Via S. Sofia 62, 95123 Catania, Italy
e-mail:	rifuggiato@lns.infn.it

Project Region: Europe

**SPARC\_LAB (Sources for Plasma Accelerators and Radiation Compton with Lasers and Beams)**

Project Location:	Italy
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	
Status of Contracting:	
Construction scheduled to start:	
Estimated Project Cost:	About 30 MEuro
Estimated Construction Duration:	3 years
Type of Equipment to be Purchased:	Accelerating structures RF components Undulators Quadrupole Magnets Vacuum chamber Control system Lasers Optics components UV and X ray detector
Project Leader(s):	Massimo Ferrario
Affiliation:	INFN-LNF
e-mail:	Massimo.Ferrario@lnf.infn.it
Contact Person(s)	Massimo Ferrario
Affiliation:	INFN-LNF
e-mail:	Massimo.Ferrario@lnf.infn.it

## Project Region: Europe

### SPES

Project Location: Italy  
Project Type: New Project  
Requirements List Available: Yes  
Approval Date: 17-Apr-12  
Status of Contracting: The SPES project is in the construction phase. Cyclotron and new building are ready at end 2014  
Construction scheduled to start: 15-Dec-12  
Estimated Project Cost: 50 Meuro  
Estimated Construction Duration: 5 years  
Type of Equipment to be Purchased: Proton cyclotron 70MeV, 1mA ISOL UCx direct target High resolution mass separator Charge Breeder (ECR type) RFQ pre-accelerator Injection into the LNL-INFN ALPI superconductive linac.  
Project Leader(s): Gianfranco Prete  
Affiliation: INFN - Laboratori Nazionali di Legnaro  
e-mail: prete@lnl.infn.it  
Contact Person(s): Giovanni Bisoffi  
Affiliation: INFN - Laboratori Nazionali di Legnaro  
e-mail: bisoffi@lnl.infn.it

Project Region: Europe

**National Electromagnetic Radiation Research Centre at the Jagiellonian University**

Project Location:	Poland
Project Type:	New Project
Requirements List Available:	No
Approval Date:	9-Apr-10
Status of Contracting:	The project is contracted, Building is built, major components are purchased,
Construction scheduled to start:	2010
Estimated Project Cost:	50 Milion Euro
Estimated Construction Duration:	5 years
Type of Equipment to be Purchased:	Linac structures, modulators, klystrons, undulators, wigglers, beamline components, front ends components, magnets: correctors, quadrupoles, dipoles,
Project Leader(s):	Carlo Joseph Bocchetta
Affiliation:	Solaris National Synchrotron Radiation Centre, Jagiellonian University
e-mail:	carlo.bocchetta@uj.edu.pl
Contact Person(s)	Adriana Izabela Wawrzyniak
Affiliation:	Solaris National Synchrotron Radiation Centre, Jagiellonian University
e-mail:	adriana.wawrzyniak@uj.edu.pl

Project Region: Europe

<b>ELI-NP Beam Gamma System</b>
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Project Location:	Romania
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	
Status of Contracting:	Contract signed between IFIN-HH and INFN Leader of EuroGammas Consortium
Construction scheduled to start:	April 15 2014
Estimated Project Cost:	66.8 ME
Estimated Construction Duration:	54 months
Type of Equipment to be Purchased:	Linac 720 MEV, 1 Photoinjector Laser, 2 LASERS 200 mJ for Compton scattering interaction chamber with laser pulse circulator diagnostics control
Project Leader(s):	Victor Zamfir for IFIN-HH, Luigi Palumbo for Eurogammas
Affiliation:	Victor Zamfir for IFIN-HH, Luigi Palumbo for Eurogammas
e-mail:	victor.zamfir@eli-np.ro - luigi.palumbo@uniroma1.it
Contact Person(s)	Victor Zamfir for IFIN-HH, Luigi Palumbo for Eurogammas
Affiliation:	Victor Zamfir for IFIN-HH, Luigi Palumbo for Eurogammas
e-mail:	victor.zamfir@eli-np.ro - luigi.palumbo@uniroma1.it

Project Region: Europe

**CELLS-ALBA**

Project Location:	Spain
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	1-Jul-14
Status of Contracting:	The projects are still in the design phase
Construction scheduled to start:	1-Jul-15
Estimated Project Cost:	6 MEUR
Estimated Construction Duration:	1 year design plus 2 years construction
Type of Equipment to be Purchased:	Front Ends      Insertion Device (electromagnetic undulator)      Beamline equipment      (mirrors, monochromators,...)
Project Leader(s):	still to be appointed
Affiliation:	still to be appointed
e-mail:	still to be appointed
Contact Person(s)	Montse Pont
Affiliation:	Accelerator Division, CELLS-ALBA
e-mail:	pont@cells.es

Project Region: Europe

<b>ESS Bilbao</b>
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Project Location:	Spain
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	30-Dec-10
Status of Contracting:	Prototyping
Construction scheduled to start:	2016
Estimated Project Cost:	90 million euro
Estimated Construction Duration:	5 years
Type of Equipment to be Purchased:	Proton sources; LEBT; RFQ; MEBT; RF control, Klystrons, RF guides, RF modulators; DTL; beam dump.
Project Leader(s):	Dr. José L. Martínez
Affiliation:	ESS Bilbao
e-mail:	jlmartinez@essbilbao.org
Contact Person(s)	Dr. José L. Martínez
Affiliation:	ESS Bilbao
e-mail:	jlmartinez@essbilbao.org

Project Region: Europe

<b>European Spallation Source (ESS)</b>
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Project Location:	Sweden
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	1-Jun-14
Status of Contracting:	Civil engineering work in progress. Major contracts to be signed in coming years.
Construction started:	Jun-14
Estimated Project Cost:	1.84 billion euros
Estimated Construction Duration:	Construction Phase: 2014 – 2019, Commissioning & Completion: 2019 – 2025, Operations: 2019 - 2065
Type of Equipment to be Purchased:	RF modulators RF power sources RF accelerating cavities (normal- and super-conducting) Cryogenics and cryodistribution systems Vacuum equipment Magnets Power supplies Beam diagnostics Other accelerator related hardware/equipment
Project Leader(s):	James Yeck (CEO)
Affiliation:	European Spallation Source (ESS)
e-mail:	jim.yeck@esss.se
Contact Person(s)	Malcolm de Silva
Affiliation:	European Spallation Source (ESS)
e-mail:	malcolm.desilva@esss.se



## Project Region: Europe

<b>FREIA</b>
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Project Location:	Sweden
Project Type:	New Project
Requirements List Available:	No
Approval Date:	1-Jan-10
Status of Contracting:	ongoing
Construction scheduled to start:	1-Jan-11
Estimated Project Cost:	20 MEUR
Estimated Construction Duration:	5 years
Type of Equipment to be Purchased:	Cryogenic equipment, vacuum components, control and data acquisition electronics
Project Leader(s):	Roger Ruber
Affiliation:	Uppsala University
e-mail:	ruber@physics.uu.se
Contact Person(s)	Roger Ruber
Affiliation:	Uppsala University
e-mail:	ruber@physics.uu.se

Project Region: Europe

**SLS 2.0**

Project Location:	Switzerland
Project Type:	Project Upgrade
Requirements List Available:	
Approval Date:	
Status of Contracting:	in preparation
Construction scheduled to start:	2021
Estimated Project Cost:	85 MCHF
Estimated Construction Duration:	3 years
Type of Equipment to be Purchased:	Magnets, vacuum, RF, diagnostics, front ends, beam lines components
Project Leader(s):	Leonid Rivkin
Affiliation:	GFA, Paul Scherrer Institute
e-mail:	leonid.rivkin@psi.ch
Contact Person(s)	Andreas Streun
Affiliation:	GFA, Paul Scherrer Institute
e-mail:	andreas.streun@psi.ch

Project Region: Europe

**AWAKE**

Project Location:	Switzerland
Project Type:	New Project
Requirements List Available:	No
Approval Date:	1-Sep-13
Status of Contracting:	The experiment is in its design phase, some of the contracting for civil engineering is under way
Construction scheduled to start:	Now
Estimated Project Cost:	This is a multi-million SFR project
Estimated Construction Duration:	Two years
Type of Equipment to be Purchased:	Beam diagnostic equipment (electrons, protons), electron beam line equipment (20MeV), magnets, power converters, RF power equipment, vacuum components, optical diagnostics including streak camera, CCD cameras, optics, THz diagnostics equipment (detectors, optics), fiber lasers, high-power laser transport line and optics, standard lab instrumentation (scopes, power supplies, signal generators), low jitter signal transmission/synchronization equipment, etc. This experiment covers a lot of different physics aspects (beam, plasma, optical diagnostics, THz diagnostics, ultra-fast diagnostics, heat exchanger, alkali metal sources, etc.)
Project Leader(s):	Edda Gschwendtner
Affiliation:	CERN

e-mail:	Edda.Gschwendtner@cern.ch
Contact Person(s)	Patric Muggli
Affiliation:	Max Planck Institute for Physics, Munich
e-mail:	muggli@mpp.mpg.de

Project Region: Europe

**Extra Low ENergy Antiproton ring ELENA**

Project Location:	Switzerland
Project Type:	New Project
Requirements List Available:	
Approval Date:	
Status of Contracting:	first calls for tender being published now (for magnets)
Construction scheduled to start:	2012
Estimated Project Cost:	18.6 MCHF including an annex building
Estimated Construction Duration:	First phase (ring and lines needed for ring commissioning) until mid-2016, second phase (new transfe
Type of Equipment to be Purchased:	Main items only: magnets (normal conducting, low field), vacuum system, power converters (mainly low power for magnets and electrostatic ones for transfer lines), electron cooler
Project Leader(s):	Christian Carli
Affiliation:	CERN, BE Department
e-mail:	Christian.Carli@cern.ch
Contact Person(s)	Christian Carli
Affiliation:	CERN, BE Department
e-mail:	Christian.Carli@cern.ch

Project Region: Europe

**High Luminosity LHC (also: HiLumi LHC, HL-LHC)**

Project Location:	Switzerland
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	1-Nov-13
Status of Contracting:	tendering components and prototypes in pre-series phases (till 2016).
Construction scheduled to start:	01.01.2016
Estimated Project Cost:	800 MCHF (material cost) including R&D and in-kind contribution; Industrial contract are about 500 M
Estimated Construction Duration:	Until 2025
Type of Equipment :	SC Magnets & components; SC RF cavities & components; Powering and controls devices for Magnets and Cavities; Collimators & precision mechanics special equipment; Vacuum equipment and beam diagnostics; Cryogenic plants and cryogenic equipment; SC links in MgB2 or High temperature superconductors; Large & precision mechanical tools; Tooling like oven for heat treatment, impregnation under pressure, etc. Welding services;
Project Leader(s):	Lucio Rossi
Affiliation:	CERN
e-mail:	lucio.rossi@cern.ch
Contact Person(s)	Isabel Bejar Alonso - Technical Coordinator
Affiliation:	CERN
e-mail:	Isabel.bejaralonso@cern.ch

Project Region: Europe

<b>LHC Injectors Upgrade (LIU)</b>
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Project Location:	Switzerland
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	1-Jan-11
Status of Contracting:	20%
Construction scheduled to start:	2012
Estimated Project Cost:	190 MCHF
Estimated Construction Duration:	9 years
Type of Equipment to be Purchased:	RF amplifiers, Power converters for magnets and RF devices, normal conducting magnets, beam instrumentation, collimators, vacuum equipment, injections systems...
Project Leader(s):	Roland Garoby
Affiliation:	CERN BE/HDO
e-mail:	Roland.Garoby@cern.ch
Contact Person(s)	Roland Garoby
Affiliation:	CERN
e-mail:	Roland.Garoby@cern.ch

## Project Region: Europe

### CLARA

Project Location:	United Kingdom, Daresbury
Project Type:	New Project
Requirements List Available:	No
Approval Date:	1-Sep-14
Status of Contracting:	
Construction scheduled to start:	1-Apr-15
Estimated Project Cost:	£30M
Estimated Construction Duration:	3 years
Type of Equipment to be Purchased:	RF, vacuum, magnets, undulators, lasers, diagnostics, power supplies, controls,
Project Leader(s):	Jim Clarke
Affiliation:	STFC
e-mail:	jim.clarke@stfc.ac.uk
Contact Person(s)	Jim Clarke
Affiliation:	STFC
e-mail:	jim.clarke@stfc.ac.uk



Project Region: Europe

<b>ISIS Linac Tank 1 Replacement</b>
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Project Location:	United Kingdom, Didcot
Project Type:	Project Upgrade
Requirements List Available:	Yes
Approval Date:	1-Mar-16
Status of Contracting:	To go through tendering process 2016-17
Construction scheduled to start:	Expected to install on ISIS in 2023, but will undergo full offline testing before then.
Estimated Project Cost:	£1.6M
Estimated Construction Duration:	5 Years
Type of Equipment to be Purchased:	Large (~1.2m dia)copper lined vessels to 12m length. Drift tubes and integral electromagnetic quadrupoles. Vacuum equipment.
Project Leader(s):	Mark Keelan
Affiliation:	STFC/ISIS
e-mail:	mark.keelan@stfc.ac.uk
Contact Person(s)	Phil Wise
Affiliation:	STFC/ISIS
e-mail:	phil.wise@stfc.ac.uk

Project Region: Europe

<b>Diamond DDBA Lattice Modification Project</b>
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Project Location:	United Kingdom, Oxfordshire
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	6-Dec-13
Status of Contracting:	Contracts placed for all major components
Construction scheduled to start:	Installation summer 2016.
Estimated Project Cost:	
Estimated Construction Duration:	2.5 years
Type of Equipment to be Purchased:	Magnets, vacuum vessels, girders and other ancillary equipment.
Project Leader(s):	R.P. Walker
Affiliation:	Diamond Light Source Ltd.
e-mail:	r.p.walker@diamond.ac.uk
Contact Person(s)	R.P. Walker
Affiliation:	Diamond Light Source Ltd.
e-mail:	r.p.walker@diamond.ac.uk

Project Region: Europe or Asia

<b>International Fusion Materials Irradiation Facility (IFMIF)</b>
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Project Location:	Europe, Japan and/or South Korea
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	1-Jan-16
Status of Contracting:	
Construction scheduled to start:	
Estimated Project Cost:	1 billion Euros
Estimated Construction Duration:	
Type of Equipment to be Purchased:	Superconducting Linac Liquid metal facility (9 m <sup>3</sup> of Lithium) Test Facility (hundreds of m <sup>3</sup> of shielding concrete) Conventional facilities Post-irradiation and examination facilities
Project Leader(s):	Juan Knaster
Affiliation:	IFMIF/EVEDA
e-mail:	juan.knaster@ifmif.org
Contact Person(s)	Juan Knaster
Affiliation:	IFMIF/EVEDA
e-mail:	juan.knaster@ifmif.org

Project Region: North America, Central and South America

<b>Accelerator Test Facility Upgrade</b>
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Project Location:	US
Project Type:	Project Upgrade
Requirements List Available:	Yes
Approval Date:	1-Jun-14
Status of Contracting:	multiple contracts in negotiation stage
Construction scheduled to start:	1-Jan-15
Estimated Project Cost:	US\$10,000,000
Estimated Construction Duration:	5 years
Type of Equipment to be Purchased:	Electron linac and beam handling components, laser components, RF electronics, clean rooms, etc.
Project Leader(s):	Prof. Ilan Ben_Zvi
Affiliation:	Brookhaven National Laboratory
e-mail:	ben-zvi@bnl.gov
Contact Person(s)	John Skaritka
Affiliation:	Brookhaven National Laboratory
e-mail:	skaritka@bnl.gov

Project Region: North America, Central and South America

**Development of a Brilliant X-ray Source Upgrade for CHESS**

Project Location:	USA
Project Type:	Project Upgrade
Requirements List Available:	Yes
Approval Date:	15-Jul-14
Status of Contracting:	Budgetary quotes only
Construction scheduled to start:	1-Nov-14
Estimated Project Cost:	\$5,674,000 USD
Estimated Construction Duration:	28 months
Type of Equipment to be Purchased:	Dipole, quadrupole magnets, vacuum chambers, extrusions, gate valves, pumps and instrumentation, shielding, magnet support and alignment.
Project Leader(s):	J. Ritchie Patterson
Affiliation:	Cornell Laboratory for Accelerator-based ScienceS and Education (CLASSE)
e-mail:	jrj3@cornell.edu
Contact Person(s)	David Rice
Affiliation:	Cornell Laboratory for Accelerator-based ScienceS and Education (CLASSE)
e-mail:	david.rice@cornell.edu

Project Region: North America, Central and South America

**eRHIC**

Project Location: USA  
Project Type: New Project  
Requirements List Available:  
Approval Date:  
Status of Contracting:  
Construction scheduled to start: ~2024  
Estimated Project Cost:  
Estimated Construction Duration:  
Type of Equipment  
to be Purchased: Presently interested in permanent magnet technology.  
Project Leader(s): Vladimir Litvinenko and Vadim Ptitsyn  
Affiliation: Collider-Accelerator Department of Brookhaven National Laboratory  
e-mail: vl@bnl.gov; vadimp@bnl.gov  
Contact Person(s) Vadim Ptitsyn  
Affiliation: Collider-Accelerator Department of Brookhaven National Laboratory  
e-mail: vadimp@bnl.gov

Project Region: North America, Central and South America

**Energy Recovery Linac using fixed-field, alternating gradient (FFAG) technology**

Project Location:	Ithaca, New York, USA
Project Type:	New Project
Requirements List Available:	No
Approval Date:	1-Jan-16
Status of Contracting:	
Construction scheduled to start:	1-Jan-16
Estimated Project Cost:	\$15,000,000 USD
Estimated Construction Duration:	2 years
Type of Equipment to be Purchased:	conventional magnets, vacuum components, permanent magnets, power supplies, beam diagnostics, electronics, RF amplifiers
Project Leader(s):	Bruce Dunham
Affiliation:	Cornell University
e-mail:	bmd29@cornell.edu
Contact Person(s)	Bruce Dunham
Affiliation:	Cornell University
e-mail:	bmd29@cornell.edu

Project Region: North America, Central and South America

**FACET-II**

Project Location:	USA
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	
Status of Contracting:	
Construction scheduled to start:	Apr-16
Estimated Project Cost:	\$44M
Estimated Construction Duration:	3 years
Type of Equipment to be Purchased:	
Project Leader(s):	Vitaly Yakimenko
Affiliation:	SLAC Accelerator National Laboratory
e-mail:	yakimenk@slac.stanford.edu
Contact Person(s)	Mark Hogan
Affiliation:	SLAC Accelerator National Laboratory
e-mail:	hogan@slac.stanford.edu



## Project Region: North America, Central and South America

### Linac Coherent Light Source II

Project Location:	USA
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	30-Apr-14
Status of Contracting:	1st solicitations for raw materials starting 4/2014; cryoplant acquisition starting 9/2014
Construction scheduled to start:	April 2015 (some materials purchases to begin immediately)
Estimated Project Cost:	Not yet determined officially: >\$750M
Estimated Construction Duration:	5.5 years
Type of Equipment to be Purchased:	The project requires 35 RF accelerating cryomodules similar to the ILC design; 4 kW 2K cryoplant and associated facilities; 53 variable gap undulators; x-ray mirrors; related hardware
Project Leader(s):	John N. Galayda
Affiliation:	SLAC National Accelerator Laboratory
e-mail:	galayda@slac.stanford.edu
Contact Person(s)	Project Email address: LCLS-II
Affiliation:	SLAC National Accelerator Laboratory
e-mail:	lcls-ii@slac.stanford.edu

Project Region: North America, Central and South America

**Proton Improvement Plan-II (PIP-II)**

Project Location:	USA
Project Type:	New Project
Requirements List Available:	Yes
Approval Date:	1-Oct-15
Status of Contracting:	R&D phase
Construction scheduled to start:	CY2019
Estimated Project Cost:	TBD
Estimated Construction Duration:	5 years
Type of Equipment to be Purchased:	Superconducting radio frequency accelerating modules. RF sources. Magnets (super- and normal- conducting). Power supplies, vacuum, controls, instrumentation equipment.
Project Leader(s):	Stephen D. Holmes
Affiliation:	Fermilab
e-mail:	holmes@fnal.gov
Contact Person(s)	Stephen D. Holmes
Affiliation:	Fermilab
e-mail:	holmes@fnal.gov

Project Region: North America, Central and South America

**DAEdALUS / IsoDAR**

Project Location: USA or Japan  
Project Type: New Project  
Requirements List Available: Yes  
Approval Date: 1-Jan-16  
Status of Contracting: Preliminary dialogs with vendors ongoing  
Construction scheduled to start: 2016  
Estimated Project Cost: \$50M (IsoDAR-60 MeV, 10 mA protons on target), \$400M (DAEdALUS-3 stations, 800 MeV 10 mA protons)  
Estimated Construction Duration: 5-10 yrs  
Type of Equipment to be Purchased: Seeking partnerships with vendors of cyclotron equipment to develop this new class of cyclotrons.  
Project Leader(s): Janet Conrad  
Affiliation: Professor, Physics Department, Massachusetts Institute of Technology  
e-mail: conrad@mit.edu  
Contact Person(s): Jose Alonso, Luciano Calabretta  
Affiliation: Massachusetts Institute of Technology (JRA), Laboratori Nazionali del Sud, Catania, Italy (LC)  
e-mail: JRAlonso@LBL.gov, Calabretta@LNS.INFN.IT

Project Region: North America, Central and South America

<b>Advanced Photon Source Upgrade</b>
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Project Location:	USA, Argonne, Illinois
Project Type:	Project Upgrade
Requirements List Available:	No
Approval Date:	
Status of Contracting:	The Project will be completing a Conceptual Design Report this year
Construction scheduled to start:	Construction is expected to start in the later years of this decade
Estimated Project Cost:	~\$0.5B (US accounting terms)
Estimated Construction Duration:	~5 years
Type of Equipment to be Purchased:	At this time the APS Upgrade is undertaking development and testing effort of critical components, including but not limited to preliminary storage ring magnet designs, vacuum systems, power supplies, and beam position monitors with ultra high precision, among other systems.
Project Leader(s):	Dr. George Srajer
Affiliation:	Argonne National Laboratory
e-mail:	srajerg@aps.anl.gov
Contact Person(s)	Mr. Jim Kerby
Affiliation:	Argonne National Laboratory
e-mail:	jkerby@aps.anl.gov

Project Region: North America, Central and South America

**Mu2e**

Project Location: USA, Batavia, Illinois  
Project Type: New Project  
Requirements List Available: No  
Approval Date: 21-Nov-08  
Status of Contracting: Upgrades, New building, and cryo system underway  
Construction scheduled to start: 2014 Site construction  
Estimated Project Cost: \$255M including the Mu2e experiment  
Estimated Construction Duration: 2012 to 2018  
Type of Equipment to be Purchased: Electronics for control and readout of beamline instrumentation (Multi-wire chambers, Beam Loss Monitors, Ion Chambers), High Radiation tolerant cameras for robotic remote handling of irradiated targets, Vacuum components, Magnet power supplies, Quadrupole Magnets (potentially), Precision motion systems for magnet stands  
Project Leader(s): Ron Ray  
Affiliation: Fermilab  
e-mail: rray@fnal.gov, zwaska@fnal.gov  
Contact Person(s): Steve Werkeman, Accelerator Upgrades  
Affiliation: Fermilab  
e-mail: werkema@fnal.gov

Project Region: North America, Central and South America

<b>Coherent Electron Cooling Proof-of-Principle Project</b>
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Project Location:	USA, Upton, NY
Project Type:	New Project
Requirements List Available:	No
Approval Date:	1-Apr-11
Status of Contracting:	Manufacturers of major equipment (cavities, cryogenic systems, FEL) are contracted.
Construction scheduled to start:	June 30 2013
Estimated Project Cost:	6M\$
Estimated Construction Duration:	two years
Type of Equipment to be Purchased:	112 MHz gun, 704 MHz accelerating cavity, solenoids, quadrupoles, dipoles, RF transmitters, helical wigglers, beam dump, integrating current transformers, beam profile monitors, beam position monitors, IR diagnostics equipment.
Project Leader(s):	Vladimir Litvinenko
Affiliation:	Collider-Accelerator Department, BNL
e-mail:	vl@bnl.gov
Contact Person(s)	Igor Pinayev
Affiliation:	Collider-Accelerator Department, BNL
e-mail:	pinayev@bnl.gov

Project Region: North America, Central and South America

**Sirius**

Project Location: Campinas, SP, Brazil  
Project Type: New Project  
Requirements List Available: No  
Approval Date: 1-Jan-00  
Status of Contracting: On going  
Construction scheduled to start: 2014  
Estimated Project Cost: USD 350.000.000  
Estimated Construction Duration: 5 years  
Type of Equipment to be Purchased: Power Suppliers, Vacuums Systems, RF Systems, Control Systems, Optics, Electronics and Mechanics  
Project Leader(s): Antonio José Roque da Silva  
Affiliation: Director of Brazilian Synchrotron Light Source  
e-mail: jose.roque@lnls.br  
Contact Person(s) Ricardo Rodrigues-Accelerator// Harry Westfahl-Beam Lines// Roberta Gomes-PMO// JoséLemos-Suppliers  
Affiliation: Ricardo Rodrigues - Director of Engineering  
e-mail: ricardo.rodrigues@lnls.br

