Abstract ID	Title	Preferred Speaker	Alternate Speakers...	Affiliation	Country Code	Proposer	Type	Abstract	Main Classification	Sub Classification	Date	Time	Duration (min)	Priority	IPAC15 speaker	SRF15 speaker	Linac14 speaker	Linac12 speaker	repeat speaker	Priority 1 countries	Priority 1 affiliation	Priority 1 labs	Priority 1 Classification	Priority 1 Sub Classification	proposer for opening/	Op/clos. Talk position
1042	N-doping: the new breakthrough technology for SRF cavities	Martina Martinello	Anna Grassellino	Fermilab (FNAL)	USA	Nikolay Solyak, Fermilab	1	Talk will present a details on a new technology of SRF cavity surface treatment - N-doping and resent studied of performance of cavity at different conditions. N-doping technology demonstrated a significant increasing of Q0 of the cavity, which is a key for cw application of SRF cavities. Now this technology is ready for production application for large -scale projects, like LCLS-II and PIP-II.	3 Technology	3A Superconducting RF			20	1	0	0	0	0	0	USA	Fermilab (FNAL)	Fermilab (FNAL)	3 Technology	3A Superconducting RF		
1046	Electron Injector for IOTA	Daniel Robert Broemmelsiek	Elvin Harms	Fermilab (FNAL)	USA	Nikolay Solyak, Fermilab	2	Injector for IOTa is based on 50MeV RF photoinjector and SRF 1.3GHz cryomodule to accelerate beam up to 200 MeV. Photoinjector and Cryomodule (CM2) were commissioned separately. CM2 demonstrated world record accelerating gradient > 30MV/m in all cavities. Commissioning of whole system was successfully done recently, when the beam propagated through the cryomodule to the dump. Results of commissioning and plans will be discussed in talk.	1 Electron Accelerators and Applications	1A Electron Linac Projects			20	1	0	0	0	0	0	USA	Fermilab (FNAL)	Fermilab (FNAL)	1 Electron Accelerators and Applications	1A Electron Linac Projects		
1047	Complete transverse 4D beam characterization for ions at energies of few MeV/u	Michael Tobias Maier	Chen Xiao (GSI)	GSI	D	Lars Groening, GSI	3	Measurement of the ion beam rms-emittances is through determination of the second order beam moments. For time being the moments quantifying the amount of inter-plane coupling, as <xy'> for instance, have been accessible to measurements just for very special cases of ions at energies below 200 keV/u using pepperpots. This talk presents successful measurements of all inter-plane coupling moments at 1 to 11 MeV/u. From first principles the used methods are applicable at all ion energies. The first campaign applied skewed quadrupoles in combination with a regular slit/grid emittance measurement device. The second campaign used a rotatable slit/grid device in combination with regular quadrupoles.	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4A Beam Dynamics, Beam Simulations, Beam Transport			20	1	0	0	0	0	0	D	GSI	GSI	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4A Beam Dynamics, Beam Simulations, Beam Transport		
1062	PXIE: Challenges and status	Paul Derwent	Steve Holmes	Fermilab (FNAL)	USA	Vyacheslav P. Yakovlev, Fe	4	The Proton Improvement Plan II (PIP-II) at Fermilab is a program of upgrades to the injection complex. At its core is the design and construction of a CW-compatible, pulsed H- superconducting RF linac. To validate the concept of the front-end of such machine, a test accelerator known as PXIE is under construction. It includes a 10 mA DC, 30 keV H- ion source, a 2 m-long Low Energy Beam Transport (LEBT), a 2.1 MeV CW RFQ, followed by a Medium Energy Beam Transport (MEBT) that feeds the first of 2 cryomodules increasing the beam energy to ~25 MeV, and a High Energy Beam Transport section (HEBT) that takes the beam to a dump. The ion source, LEBT, RFQ, and initial version of the MEBT have been built, installed, and commissioned. This report presents the overall status of the PXIE warm front end, including results of the beam commissioning through the installed components, and progress with SRF cryomodules and other systems.	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects			20	1	0	0	0	0	0	USA	Fermilab (FNAL)	Fermilab (FNAL)	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects		
1081	The laser notcher for the Fermilab booster	Fernanda Gallinucci Garcia	D. Jonhson	Fermilab (FNAL)	USA	Vyacheslav P. Yakovlev, Fe	5	In synchrotron machines the beam extraction is accomplished by a combination of septa and kicker magnets which deflect the beam from an accelerator into another. Ideally the kicker field must rise/fall in between the beam bunches. However, in reality, an intentional beam-free time region (aka notch") is created on the beam pulse to assure that the beam can be extracted with minimal losses. In the case of the Fermilab Booster the notch is created in the ring near injection energy by the use of fast kickers which deposit the beam in a shielded collimation region within the accelerator tunnel. With increasing beam power it is desirable to create this notch at the lowest possible energy to minimize activation. The Fermilab Proton Improvement Plan (PIP) initiated an R&D project to build a laser system to create the notch within a linac beam pulse at 750 keV. We will describe the concept for the laser notcher and discuss our current status and future plans for installation of the device.	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects			20	1	0	0	0	0	0	USA	Fermilab (FNAL)	Fermilab (FNAL)	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects		
1082	SRF Cavity Resonance Control for future Linear Accelerators	Warren Schappert	Jeremiah Holzbauer	Fermilab (FNAL)	USA	Vyacheslav P. Yakovlev, Fe	6	Many of the next generation of particle accelerators (LCLS II, PIP II) are designed for relatively low beam loading. Low beam loading requirement means the cavities can operate with narrow bandwidths, minimizing capital and base operational costs of the RF power system. With such narrow bandwidths, however, cavity detuning from microphonics or dynamic Lorentz Force Detuning becomes a significant factor, and in some cases can significantly increase both the acquisition cost and the operational cost of the machine. In addition to the efforts to passive environmental detuning reduction (microphonics) active resonance control for the SRF cavities for next generation linear machine will be required. State of the art in the field of the SRF Cavity active resonance control and the results from the recent efforts at FNAL will be presented in this talk.	3 Technology	3A Superconducting RF			20	1	0	0	0	0	0	USA	Fermilab (FNAL)	Fermilab (FNAL)	3 Technology	3A Superconducting RF		
1101	Status of SPIRAL2 and RFQ Beam Commissioning	Robin Ferdinand	Jean Michel Lagniel	Grand Accélérateur Nat. d'Ions Lourds (GANIL)	F	Patrick Bertrand, GANIL	7	The SPIRAL2 linac starts its beam commissioning at GANIL. The project is finishing the superconducting linac installation and commissioning. In parallel, the first source beam has been produced in 2014. The light and the heavy ion sources have already produced their expected beam performances. The RFQ conditioning started in October 2015, and the beam commissioning soon after that. After having briefly recalled the project scope and parameters, the RFQ beam commissioning ranging from 5mA CW proton beam to 1mA Q/A=1/6 will be presented.	2 Proton and Ion Accelerators and Applications	2C RFQs			20	1	0	0	0	0	0	F	Grand Accélérateur Nat. d'Ions Lourds (GANIL)	Grand Accélérateur Nat. d'Ions Lourds (GANIL)	2 Proton and Ion Accelerators and Applications	2C RFQs		

1122	BEAM COMMISSIONING RESULTS FROM THE R&D ERL AT BNL	Dmitry Kayran	Ilan Ben-Zvi	Brookhaven National Laboratory (BNL)	USA	Deepak Raparia, BNL	8	An ampere class 20 MeV superconducting Energy Recovery Linac is presently under commissioning at Brookhaven National Laboratory (BNL). The flexible lattice of the ERL loop provides a test-bed for investigating issues of transverse and longitudinal instabilities, halo formation and diagnostics for intense CW electron-beams. The key components of R&D ERL are the highly damped 5-cell 704 MHz superconducting RF cavity and the high-current superconducting RF gun. The gun is equipped with a multi-alkaline photocathode insertion system. First photocurrent from ERL SRF gun has been observed in November 2014. In June 2015 a high charge 0.5nC and 20 uA average current were demonstrated. In July 2015 gun to dump beam test started. The beam was successfully transported from the SRF gun through the injection system, then through the linac to the beam dump. All ERL loop components have been installed, and the ERL loop is under commissioning. After ERL commissioning in BLDG912 the ERL will be relocated to RHIC IP2 to be used as low energy RHIC electron cooler. We present our results of the BNL ERL beam commissioning, the measured beam properties, the operational status, and future prospects.	1 Electron Accelerators and Applications	1B Energy Recovery Linacs			20	1	0	0	0	0	0	USA	Brookhaven National Laboratory (BNL)	Brookhaven National Laboratory (BNL)	1 Electron Accelerators and Applications	1B Energy Recovery Linacs		
1163	Integration of superconducting solenoids in long cryomodules	Sang-Hoon Kim	Juliette Plouin (CEA)	Argonne National Laboratory (ANL)	USA	Peter Ostroumov, ANL	9	Superconducting (SC) solenoids provide efficient focusing of ion beams in SC linacs. This talk will discuss design, installation and operational experience of long cryomodules containing multiple SC solenoids. The techniques for the the alignment of cavity-solenoid string will be presented. The solenoid assemblies include X-, Y-steering coils and does not require any iron shielding. The studies of SRF cavity properties after the quenching next to the solenoid will be presented.	3 Technology	3E Cryomodules and cryogenics			20	1	0	0	0	0	0	USA	Argonne National Laboratory (ANL)	Argonne National Laboratory (ANL)	3 Technology	3E Cryomodules and cryogenics		
1181	Plasma processing to improve the performance of the SNS superconducting linac	Marc Doleans		Oak Ridge National Laboratory (ORNL)	USA	Sang-Ho Kim, ORNL	10	A new In-situ plasma processing technique has been developed for the SNS superconducting linac. The plasma processing aims at increasing the performance of the cavities in operation. The test results with cavities in the horizontal test apparatus confirmed that the plasma processing can help reducing field emission and multipacitng. Recently the technique was applied to an offline cryomodule with successful results. The first deployment of the in-situ plasma processing to a cryomodule in the SNS linac tunnel is planned in January 2016.	3 Technology	3A Superconducting RF			20	1	0	1	0	0	Marc Doleans	USA	Oak Ridge National Laboratory (ORNL)	Oak Ridge National Laboratory (ORNL)	3 Technology	3A Superconducting RF		
1295	Development of new heavy ion linacs at GSI	Lars Groening	Sascha Mickat	GSI	D	Alwin Schempp, IAP	11	New strategies of heavy ion accelerators are under discussion to meet future requirements. At IAP a conceptual design study was started with main focus of an advanced educational training of students to become familiar with the working methods of accelerator physics and to meet the needs of the world leading high energy laboratories. These activities result in a LINAC concept, proposed under application of effective beam dynamic models with an attention for future developments in combination with state-of-art techniques.	2 Proton and Ion Accelerators and Applications	2B Ion Linac Projects			20	1	0	0	0	0	0	D	GSI	GSI	2 Proton and Ion Accelerators and Applications	2B Ion Linac Projects		
1301	Status and commissioning of the HIE-ISOLDE Linac	Yacine Kadi	Walter Venturini Delsolaro	CERN	CH	Frank Gerigk, CERN	12	The HIE-ISOLDE project (High Intensity and Energy ISOLDE) reached an important milestone in October 2015 when the first physics run was carried out with radioactive Zn beams at 4 MV/m. This is a first stage in the upgrade of the REX post-accelerator, whereby the energy of the radioactive ion beams was increased from 3 to 4.3 MeV per nucleon.The facility will ultimately be equipped with four high-beta cryomodule that will accelerate the beams up to 10 MeV per nucleon for the heaviest isotopes available at ISOLDE. The first cryomodule of the new linac, hosting five superconducting cavities and one solenoid, was commissioned in summer 2015, while the second one was being assembled in clean room. The new high-energy beam transfer lines were installed and commissioned in the same lapse of time. Commissioning with two cryomodules is planned for Summer 2016 to prepare for a physics run at 5.5 MeV/u in the second half of the year. This contribution will focus on the results of the commissioning and on the main technical issues that were highlighted.	2 Proton and Ion Accelerators and Applications	2B Ion Linac Projects			20	1	0	0	0	0	0	CH	CERN	CERN	2 Proton and Ion Accelerators and Applications	2B Ion Linac Projects		
1302	Experience with the construction and commissioning of Linac4	Jean Baptiste Lallement	Maurizio Vretenar	CERN	CH	Frank Gerigk, CERN	13	This talk can summarise the main construction phases and the lessons learned, report on the results and experience with beam commissioning, and outline the future plans in view of the connection to the PS Booster during the next LHC long shutdown.	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects			20	1	0	0	0	0	0	CH	CERN	CERN	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects		
1305	Status of the European XFEL	Hans Weise	Winfried Decking	DESY	D	Stefan Choroba, DESY	14	The European XFEL under construction at present at DESY in Hamburg, Germany, will produce Xray beams with unprecedented properties. Most of the components for the superconducting linac have been produced and are installed. The presentation will summarize the status of the project.	1 Electron Accelerators and Applications	1A Electron Linac Projects			30	1	0	0	0	0	0	D	DESY	DESY	5 Opening and Closing Session	5A Opening Session	WG1	opening 2
1306	CLIC high-gradient accelerating structure development	Walter Wuensch	Alex Grudiev	CERN	CH	Daniel Schulte, CERN	15	Significant progress has been made by the CLIC collaboration to understand the phenomena which limit gradient in normal-conducting accelerating structures and to increase achievable gradient in excess of 100 MV/m. Scientific and technological highlights from the CLIC high-gradient program are presented along with on-going developments and future plans. The talk will also give an overview of the range of applications that potentially benefit from high-frequency and high-gradient accelerating technology.	3 Technology	3B Room Temperature RF			20	1	0	0	0	0	0	CH	CERN	CERN	3 Technology	3B Room Temperature RF		

1311	VELA and CLARA	Peter McIntosh	Deepa Angal-Kalinin	STFC/DL/ASTeC	UK	Graeme Burt, Cockcroft Inst	16	The Versatile Electron Linear Accelerator (VELA) facility provides enabling infrastructures targeted at the development and testing o novel and compact accelerator technologies, specifically through partnership with academia and industry and aimed at addressing applications in medicine, health, security, energy and industrial processing. The facility has now been commissioned at Daresbury Laboratory and is now being actively utilised to take advantage of the variable electron beam parameters to either demonstrate new techniques and/or processes or otherwise develop new technologies for future commercial realisation. Examples of which include; electron diffraction research, demonstration of a new cargo scanning process, characterisation of novel, development o high performance beam position monitors, as well as other technology development applications. CLARA at Daresbury Laboratory will be a novel FEL test facility focussed on the generation of ultra-short photon pulses with extreme levels of stability and synchronisation. The principal aim is to experimentall demonstrate that sub-cooperation length pulse generation with FELs is viable, and to compare the various schemes being championed. The results will translate directly to existing and future X-ray FELs, enabling them to generate attosecond pulses, thereby extending their science capabilities.	1 Electron Accelerators and Applications	1F Industrial and Medical Accelerators			20	1	0	0	0	0	0	UK	STFC/DL/ASTeC	STFC/DL/ASTeC	1 Electron Accelerators and Applications	1F Industrial and Medical Accelerators		
1322	Commissioning of the Lanzhou ADS front-end	Yuan He	Hongwei Zhao	Chinese Academy of Sciences (IMP)	PRC	Frank Gerigk, CERN	17	Report on the construction and beam commissioning of the front-end up to the first or second cryomodule at IMP Lanzhou.	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects			20	1	0	1	0	0	Yuan He	PRC	Chinese Academy of Sciences (IMP)	Chinese Academy of Sciences (IMP)	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects		
1325	Ion effects in high-brightness electron linac beams	Steve Full		Cornell University	USA	Matthias Liepe, Cornell Univ	18	Electron beams ionize rest gas particles which then accumulate around them, disturbing beam dynamics and causing background radiation. While this effect has been predicted in the past, linacs have hitherto not suffered from it because of their rather small beam current. The effect of ions increases with larger currents and smaller cross sections of the beam, and it has clearly been observed in Cornell's high-brightness ERL injector for the first time. This presentation will show experimental evidence for ions, demonstrate strategies for their elimination, and will compare the experimental data to theories of beam-ion interactions.	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4B Electron and Ion Sources, Guns, Photo Injectors, Charge Breeders			20	1	0	0	0	0	0	USA	Cornell University	Cornell University	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4B Electron and Ion Sources, Guns, Photo Injectors, Charge Breeders		
1343	Low emittance and high current electron linac development at Tsinghua University	Chuanxiang Tang	Wenhui Huang	Tsinghua University in Beijing (TUB) Accelerator Laboratory Department of Engineering Physics	PRC	Hongwei Zhao, IMP/CAS	19	A few research programs related to low emittance and high current electron linacs are being implemented at Tsinghua University. Research and developemnts on high luminosity photocathode electron gun,high gradient accleration structure are very impressive.	1 Electron Accelerators and Applications	1A Electron Linac Projects			20	1	0	0	0	0	0	PRC	Tsinghua University in Beijing (TUB) Accelerator Laboratory Department of Engineering Physics	Tsinghua University in Beijing (TUB) Accelerator Laboratory Department of Engineering Physics	1 Electron Accelerators and Applications	1A Electron Linac Projects		
1344	Intense beam production of highly charged ions by a superconducting ECR ion source SECRAL for heavy ion linacs	Liangting Sun		Chinese Academy of Sciences (IMP)	PRC	Hongwei Zhao, IMP/CAS	20	Recently a superconducting ECR ion source SECRAL operated at 24 GHz at IMP has produced a lot of new record beam currents for highly charged ions due to some new technologies applied, such as a new microwave coupling system. The world first 4th generation ECR ion source operated at 45 GHz is being developed at IMP. All these developments on intense beam production of highly charged ions by superconducting ECR ion source may play a significant role for the next generation heavy ion linac such as FRIB and iLINAC of HIAF project.	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4B Electron and Ion Sources, Guns, Photo Injectors, Charge Breeders			20	1	0	0	0	0	0	PRC	Chinese Academy of Sciences (IMP)	Chinese Academy of Sciences (IMP)	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4B Electron and Ion Sources, Guns, Photo Injectors, Charge Breeders		
1346	High power operetion of SNS SC linac	Michael Plum	John Galambos	Oak Ridge National Laboratory (ORNL)	USA	Hongwei Zhao, IMP/CAS	21	Recently a lot of detailed studies on errant beam,gradient changes of superconducting cavities and beam trips have been carried out. The results are very impressive and interesting for long-term operation of those high power proton linacs.	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects			20	1	0	0	0	0	0	USA	Oak Ridge National Laboratory (ORNL)	Oak Ridge National Laboratory (ORNL)	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects		
1347	Achievement of Small Beam Size at ATF2 Beamline	Toshiyuki Okugi		High Energy Accelerator Research Organization (KEK)	J	Yujiro Ogawa, KEK	22	I strongly recommend Dr Toshiyuki Okugi, KEK, for the invited ora presentation for his significant contribution to beam commissioning of the ATF2 facility at KEK - a 1.3 GeV prototype of the compact local chromaticity correction final focus system for linear collider. The large international team of researchers, spearheaded by intellectual leadership of Toshiyuki Okugi, was able to successfully commission the prototype final focus, achieving 44nm beam size - very close to ideal expected size of 37nm. Dr Okugi played a central role in the beam tuning reaching the 44nm by developing various knobs and improving the performances of the interferometric Shintake monitor at the same time. The achievements of Dr Toshiyuki Okugi and the ATF2 team have opened the way to reliable and predictable operation of the linear collider.	1 Electron Accelerators and Applications	1E Colliders			20	1	0	0	0	0	0	J	High Energy Accelerator Research Organization (KEK)	High Energy Accelerator Research Organization (KEK)	1 Electron Accelerators and Applications	1E Colliders		
1350	Towards commissioning of the IFMIF RFQ	Andrea Pisent	Francesco Grespan	INFN/LNL	I	Paolo Pierini, INFN/LASA	23	All 18 sections of the IFMIF RFQ have been completed in summer 2015. Two 1 m sections have been RF tested at LNL at the design value of 100 kW/m in cw conditions. The three 6 m supermodules will be ready in January 2016. The RFQ will be installed by the time of LINAC16, possibly already providing beams, but RF commissioning should be anyhow available.	2 Proton and Ion Accelerators and Applications	2C RFQs			20	1	0	0	0	0	0	I	INFN/LNL	INFN/LNL	2 Proton and Ion Accelerators and Applications	2C RFQs		
1352	Beam Commissioning of the J-Parc 400 MeV Linac	Tomofumi Maruta	Yong Liu	High Energy Accelerator Research Organization (KEK)	J	Yujiro Ogawa, KEK	24	I recommend Dr. Yong Liu of KEK as an invited speaker for the J-PARC linac. He is the leader of the beam commissioning group of the J-PARC linac which has been upgraded for the energy from 181MeV to 400MeV in 2013 and for the beam current from 30mA to 50mA in 2014. Since Dr. Liu has the charge now to increase the beam quality of the linac, he must be the best person to show the operation experience of the J-PARC linac.	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects			20	1	0	0	0	0	0	J	High Energy Accelerator Research Organization (KEK)	High Energy Accelerator Research Organization (KEK)	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects		

1353	Reaching Beyond Conventional Accelerator Capabilities with Laser-Plasma Ion Accelerators	Ishay Pomerantz		School of Physics and Astronomy	IL	Dan Berkovits, Soreq NRC	25	For the past few decades, nuclear research has been exclusive to large accelerator and reactor facilities. The availability of tabletop particle sources based on high intensity lasers opens venues for new research methods in nuclear physics, both at large facilities and at university-scale laboratories. It has been demonstrated in many experiments that the kinetic energy of a particle radiated by a high intensity laser-plasma interaction is sufficient to induce nuclear reactions. These achievements, however, duplicated experimental results achieved decades ago with conventional accelerator. While often smaller and cheaper, laser systems to-date have shown no technical advantage over conventional accelerators. This talk will review the state-of-the-art in laser-ion acceleration, and discuss how next generation laser systems can go beyond conventional accelerator capabilities. Specifically, the talk will present a novel, ultrashort pulsed laser-driven neutron generator developed at U. Texas [I. Pomerantz et al., Ultrashort pulsed neutron source, Phys. Rev. Lett 2014, 113:184801], generating a peak flux of 10^18 n/cm^2/s, thus exceeding any other pulsed or CW neutron source.	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4C Plasma and Laser Wakefield Acceleration			30	1	0	0	0	0	0	IL	School of Physics and Astronomy	School of Physics and Astronomy	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4C Plasma and Laser Wakefield Acceleration	SPC chair	pre-closing
1356	Performance analysis of the European XFEL SRF cavities, from VT to operation in modules	Nicholas Walker	Detlef Reschke	DESY	D	Paolo Pierini, INFN/LASA	26	More than 800 resonators have been fabricated, vertically qualified and operated in module tests before the accelerating module installation in the linac, which will be terminated before the conference. An analysis of this experience, with correlation of the final cavity performances with production, preparation and assembly stages, is underway and at the time of the conference a final summary of the activities will be available.	3 Technology	3A Superconducting RF			20	1	0	0	0	0	0	D	DESY	DESY	3 Technology	3A Superconducting RF		
1358	Commissiong and early operation of the ARIEL e-linac	Thomas Planche	Marco Marchetto	TRIUMF	CDN	Bob Laxdal, TRIUMF	27	The ARIEL electron linac has been added to the TRIUMF facility as a new driver for the production of radioactive isotopes through photo-fission to complement the existing 500MeV H- TRIUMF cyclotron. The electron beam driver is specified as a 50 MeV 10 mA CW superconducting electron linac at 1.3GHz. The first 30MeV stage of the e-linac consisting of two cryomodules is completed and commissioning and operation are underway. The paper will present the e-linac design characteristics and describe the commissioning and operation results. Thomas Planche is a young researcher at TRIUMF who led the beam commissioning.	1 Electron Accelerators and Applications	1A Electron Linac Projects			20	1	0	0	0	0	0	CDN	TRIUMF	TRIUMF	1 Electron Accelerators and Applications	1A Electron Linac Projects		
1363	Pulsed High Power Klystron Modulators for the Ess Linac Based on the Stacked Multi-Level Topology	Carlos Martins		ESS	SE	David McGinnis, ESS	28	ESS has launched an internal R&D project in view of designing, prototyping and validation of a klystron modulator compatible with the requirements mentioned above based on a novel topology named SML (Stacked Multi-Level). This topology is modular and based on the utilization of High Frequency (HF) transformers. The topology allows for the usage of industrial standard power electronic components at the primary stage at full extent which can easily be placed and wired in a conventional electrical cabinet It requires only few special components like HF transformers, rectifiers and filters (i.e. passive components) to be placed in an oi tank. This arrangement allows scaling up in average and pulse power to the required levels keeping the size, cost, efficiency and reliability of the different modules under good control. Besides the very good output pulse power quality, the AC grid power quality is also remarkably high with a line current harmonic distortion below 3%, a unitary power factor and an extremely reduced line voltage flicker below 0.3%. A reduced scale modulator prototype is at the final phase of construction and is expected to be validated by the beginning of 2016.	3 Technology	3C RF Power Sources and Power Couplers			20	1	0	0	0	0	0	SE	ESS	ESS	3 Technology	3C RF Power Sources and Power Couplers		
1364	The Superconducting Radio-Frequency Linear Accelerator Components for the European Spallation Source: First Test Results	Christine Darve	Sebastien Bousson (IPNO)	ESS	SE	David McGinnis, ESS	29	The European Spallation Source requires a pulsed Linac with an average beam power on the target of 5MW which is about five times higher than the most powerful spallation source in operation today. Over 97% of the acceleration occurs in superconducting cavities. ESS will be the first accelerator to employ double spoke cavities to accelerate beam. Accelerating gradients of 9MV/meter is required in the spoke section. The spoke section will be followed by 36 elliptical 704 MHz cavities with a geometrical beta of 0.67 and elliptical 704 MHz cavities with a geometrical beta of 0.86. Accelerating gradients of 20MV/meter is required in the elliptical section. Initial gradient test results will be presented in which results exceed expected requirements.	3 Technology	3A Superconducting RF			20	1	0	0	0	0	0	SE	ESS	ESS	3 Technology	3A Superconducting RF		
1368	Status of the PAL-XFEL	Heung-Sik Kang	Insook Koo	Pohang Accelerator Laboratory (PAL)	KOR	Yong Ho Chin, KEK	30	The construction of the PAL-XFEL will be completed by the end of 2015, and the linac commissioning will start from the beginning of 21016. By September 2016, we can hear commissioning results of the 0.3nm FEL lasing.	1 Electron Accelerators and Applications	1D FELs			30	1	0	0	0	0	0	KOR	Pohang Accelerator Laboratory (PAL)	Pohang Accelerator Laboratory (PAL)	1 Electron Accelerators and Applications	1D FELs	WG1	post-opening
1378	Operation of KOMAC 100 MeV Linac	Han-Sung Kim	Yong Sub Cho	Korea Atomic Energy Research Institute (KAERI)	KOR	Kazuo Hasegawa, J-PARC,	31	KOMAC is a multi-purpose facility for proton applications in Korea. The linac has delivered beam to users at the energy of 100 MeV and beam power of 10 kW. They are accumulating beam operation experiences and also they have a plan to upgrade to 30 kW level. They also have a future upgrade plan by using a superconducting linac or an RCS. The status and prospects will be presented.	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects			20	1	0	0	0	0	0	KOR	Korea Atomic Energy Research Institute (KAERI)	Korea Atomic Energy Research Institute (KAERI)	2 Proton and Ion Accelerators and Applications	2A Proton Linac Projects		
1380	Development of a muon linac for the g-2/EDM Experiment at J-PARC	Masashi Otani		High Energy Accelerator Research Organization (KEK)	J	Kazuo Hasegawa, J-PARC,	32	Precision measurements of the muon's anomalous magnetic moment (g-2) and electric dipole moment (EDM) are one of the effective ways to test the standard model. An ultra-cold muon beam is generated from a surface muon beam by a thermal muonium production and accelerated to 300 MeV/c by a linac. The muon linac consists of an RFQ, an inter-digital IH, a Disk And Washer structure, and a disk loaded structure. The ultra-cold muons will have an extremely small momentum spread of 0.3 % with a normalized transverse emittance of around 1.5 pi mm-mrad The design and status of the muon linac at J-PARC will be presented.	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4F Other Beams			20	1	0	0	0	0	0	J	High Energy Accelerator Research Organization (KEK)	High Energy Accelerator Research Organization (KEK)	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4F Other Beams		
1384	Status of SwissFEL	Florian Loehl	Eduard Prat	PSI	CH	Terence Garvey, PSI	33	The title speaks for itself. A stsaus report on the construction of SwissFEL.	1 Electron Accelerators and Applications	1A Electron Linac Projects			20	1	0	0	0	0	0	CH	PSI	PSI	1 Electron Accelerators and Applications	1A Electron Linac Projects		

1388	Assembly of XFEL cryomodules: lessons and results	Stephane Berry	Catherine Madec	CEA/IRFU	F	Walid Kaabi, LAL	34	The industrialised string and module assembly of 103 European XFEL cryomodules has been performed at CEA-Saclay between September 2012 and the spring of 2016. The general features and achievements of this construction project will be reviewed, including lessons learned regarding organisation, industrial transfer, quality control and assembly procedures. An overview of the cryomodule performance and RF test results will be presented.	3 Technology	3E Cryomodules and Cryogenics			20	1	0	0	0	0	0	F	CEA/IRFU	CEA/IRFU	3 Technology	3E Cryomodules and Cryogenics		
1391	Spaceborne Electron Accelerators	John Wesley Lewellen		LANL	USA	Kip Bishofberger, LANL	35	High-power electron beam generators in space will enable the studies of solar and space physics, specifically the interrogation of magnetic connection between the magnetosphere and ionosphere. This study plans to map the magnetic connection between the magnetosphere and ionosphere, using a satellite equipped with an electron beam accelerator that can create a spot in the ionosphere, observable by optical and radar detectors on the ground. To date, a number of spacecraft carrying low-power, <50-keV DC electron beam sources have been launched to study the upper ionosphere. The overall instrument weight will likely be dominated by the weight of the energy storage, the RF power amplifiers and the accelerator structure. We present the notional concept of a quasi-CW, C-band electron accelerator with 1-MeV beam energy, 10-mA beam current, and requiring 40 kW of prime power during operation. Our novel accelerator concept includes the following features: individually powered cavities driven by 6-GHz high-electron mobility transistors (HEMT), passively cooled accelerator structures with heat pipe technology, and active frequency control for operating over a range of temperatures.	1 Electron Accelerators and Applications	1G Other Electron Accelerators			20	1	0	0	0	0	0	USA	LANL	LANL	1 electron Accelerators and Applications	1G Other Electron Accelerators		
1398	Dielectric Linear Accelerator - Accelerator on a chip	Robert Joel England	Robert L. Byer	SLAC National Accelerator Laboratory (SLAC)	USA	Tor Raubenheimer, SLAC	36	DLA - the accelerator on a chip - offers a paradigm for accelerators where they would be manufactured as semiconductor wafers and use industrially produced lasers as power sources. The recent acknowledgement with a 13 M$ grant from the Moore Foundation will advance the technology. Recent results and future plans will be shown.	3 Technology	3B Room Temperature RF			30	1	0	0	0	0	0	USA	SLAC National Accelerator Laboratory (SLAC)	SLAC National Accelerator Laboratory (SLAC)	5 Opening and Closing Session	5B Closing Session	WG3	closing1
1401	The LCLS-II SCRF Linac	Marc Christopher Ross	Tor Raubenheimer	SLAC National Accelerator Laboratory (SLAC)	USA	Tor Raubenheimer, SLAC	37	The LCLS-II CW x-ray FEL is based on high Q0 1.3 GHz SCRF cavities powered by solid-state amplifiers. This talk will describe the R&D towards these cavities and the recent results of cryomodule prototypes.	1 Electron Accelerators and Applications	1A Electron Linac Projects			30	1	0	0	0	0	0	USA	SLAC National Accelerator Laboratory (SLAC)	SLAC National Accelerator Laboratory (SLAC)	1 Electron Accelerators and Applications	1A Electron Linac Projects		
1406	SARAF FOUR RODS RFQ RF POWER LINE SPLITTING DESIGN	Jacob Rodnizki		Soreq Nuclear Research Center (Soreq NRC)	IL	Dan Berkovits, Soreq NRC	38	In the last years the SARAF 176 MHz 3.8 m long 4-rod RFQ accelerates routinely 2-4 mA CW proton beams to 1.5 MeV for basic studies in physics. However, it has not been successful in running CW deuteron beam for long periods. The findings imply that the RF coupler is the bottle neck to reach 250 kW CW dissipated power, equivalent to 65 kV inter-rod voltage, required to run the CW deuteron beam. A new design that splits the RFQ power between two couplers was built and commissioned successfully. A 3dB splitter and two new RF couplers were installed. The RF couplers improved design allows better brazing methods, vacuum properties and RF sealing. This design is innovative from two points of view: (a) implementation of two synchronized couplers located in two separated RF cells in a 4-rod RFQ. (b) The ability to run the RFQ in 200-250 kW to accelerate a 5 mA CW deuteron beam by 2.6 MV required for the new modulation design for 1.3 MeV/u. To our knowledge, SARAF RFQ will be the first 4-rod RFQ capable of running a CW deuteron beam at these power densities. This work may contribute to other 4-rod RFQ projects which intend to run CW beams in high dissipation power, like FRANZ and MYRRHA.	2 Proton and Ion Accelerators and Applications	2C RFQs			20	1	0	0	0	0	0	IL	Soreq Nuclear Research Center (Soreq NRC)	Soreq Nuclear Research Center (Soreq NRC)	2 Proton and Ion Accelerators and Applications	2C RFQs		
1407	Staging of laser-plasma electron accelerators	Sven Steinke	Wim Leemans	Lawrence Berkeley National Laboratory (LBNL)	USA	Cameron Guy Robinson Ge	39	We present results of an experiment where two Laser-Plasma-Accelerator stages are coupled at a short distance, as is needed to increase energy while preserving average gradient. Stable electron beams produced by the first stage were focused by a discharge capillary-based active plasma lens, through a plasma mirror which coupled a second independent laser, into the second stage. The electron beam interacted with a dark-current-free, quasi-linear wakefield excited by the second stage laser. Changing the arrival time of the electron beam allowed localized reconstruction of the temporal field structure excited by the wake and determination of the on-axis plasma density. Staged acceleration in the wakefield of the second stage was verified by a momentum gain of the electron beam. The results indicate that limits to plasma accelerator energy gain can be overcome using staged acceleration, which provides a path to collider-relevant energies. Such compact staging is also important to photon sources where it can be used to decelerate electrons after photon production to mitigate shielding needs.	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4C Plasma and Laser Wakefield Acceleration			20	1	0	0	0	0	0	USA	Lawrence Berkeley National Laboratory (LBNL)	Lawrence Berkeley National Laboratory (LBNL)	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4C Plasma and Laser Wakefield Acceleration		
1411	Production challenge of many kinds of complicated FRIB cyomodule systems	Laura Popielarski	Ting Xu	Facility for Rare Isotope Beams (FRIB)	USA	Yoshishige Yamazaki, FRIB	40	The FRIB driver linac is comprised of many kinds of complicated cryomodules: two types of cavities (QWR and HWR), four kinds of cavities, six kinds of cryomodules, SC solenoids with steerers in both directions, beam diagnostics, and so forth. Many technical challenges are included in the mass production of these complicated systems, and can be a front runner for the future CW, high beam power ion linacs, including ADS, project X types, IFMIF and so forth.	3 Technology	3E Cryomodules and Cryogenics			20	1	0	0	0	0	0	USA	Facility for Rare Isotope Beams (FRIB)	Facility for Rare Isotope Beams (FRIB)	3 technology	3E Cryomodules and Cryogenics		
1412	Worldwide direction on nuclear science and application	Thomas Glasmacher		Facility for Rare Isotope Beams (FRIB)	USA	Yoshishige Yamazaki, FRIB	41	This is not an accelerator talk, but to guide accelerator development and project in future from the viewpoint of nuclear science and application.	2 Proton and Ion Accelerators and Applications	2B Ion Linac Projects			30	1	0	0	0	0	0	USA	Facility for Rare Isotope Beams (FRIB)	Facility for Rare Isotope Beams (FRIB)	5 Opening and Closing Session	5B Closing Session	SPC chair/WG2	closing 2
1419	The FRIB Superconducting Linac - Status and plans	Jie Wei	?look for alternate speaker	Facility for Rare Isotope Beams (FRIB)	USA	Robert Edward Laxdal, TRIU	42	The FRIB linac is now in production phase. When complete it will be the largest superconducting heavy ion linac in the world. Since FRIB is hosting the conference this talk should be considered for the opening session.	2 Proton and Ion Accelerators and Applications	2B Ion Linac Projects			30	1	0	0	0	0	0	USA	Facility for Rare Isotope Beams (FRIB)	Facility for Rare Isotope Beams (FRIB)	5 Opening and Closing Session	5A Opening Session	WG3	opening 1
1421	Fast envelope tracking for space charge-dominated injectors	Richard Baartman		TRIUMF	CDN	Tor Raubenheimer, SLAC	43	High brightness injectors are increasingly pushing against space charge effects. Usually, particle tracking codes such as ASTRA, GPT, or PARMELA are used to model these systems however these can be slow to use for detailed optimization. It becomes increasingly challenging in future projects such as LCLS-II where space charge effects are still significant after BC1 and BC2 at 250 and 1600 MeV respectively. This talk will describe an envelope tracking approach that compares well against the particle tracking codes and could facilitate much faster optimization..	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4A Beam Dynamics, Beam Simulations, Beam Transport			20	1	0	0	0	0	0	CDN	TRIUMF	TRIUMF	4 Beam Dynamics, Extreme Beams, Sources and Beam Related Technology	4A Beam Dynamics, Beam Simulations, Beam Transport		

1468	Linac-based Free Electron Laser in China	Zhentang Zhao		Shanghai Institute of Applied Physics (SINAP)	PRC	Guoxi Pei (Institute of High Energy Physics (IHEP), Chinese Academy of Sciences Beijing Beijing)	44	The high gain free electron lasers(FEL) based on electron linacs can offer unprecedented performances for many science fields. There are several FEL facilities in China that have been built at different wavelength egimes. This paper will describe the latest developement of three makjor FEL facilities in China including Shanghai Deep UV FEL at SINAP, DCLS VUV FEL at DICP and Shanghai X-ray FEL at SINAP.	1 Electron Accelerators and Applications	1D FELs			20	1	0	0	0	0	0	PRC	Shanghai Institute of Applied Physics (SINAP)	Shanghai Institute of Applied Physics (SINAP)	1 Electron Accelerators and Applications	1D FELs		
1479	Results from the laserwire emittance scanner and profile monitor at CERN's Linac4	Thomas Hofmann		CERN	CH	Jürgen Klaus Pozimski (Imperial College of Science and Technology London London)	45	A sequence of tests of a novel, non-invasive H- laserwire has been performed during the beam commissioning steps of CERN's new Linac4. Laserwire emittance measurements were performed at a Linac4 beam energy of 3 and 12 MeV, and were found to closely match conventional slit-grid emittance measurements. In 2015, a new laserwire configuration was installed in which the electrons liberated from the photo-detachment process are deflected and focused into a single crystal diamond detector, which can be moved in synchronization with the transverse laserwire scan. At the 50 MeV beam commissioning the first laserwire profiles recorded with the new setup indicate close compatibly with the interpolated measurements from nearby SEM grids. Full results from the 50 MeV and 100 MeV commissioning stages are expected to be available at the time of the Linac16 conference. Finally, the design and implementation of a dual station laserwire system, with four independent measurement axes and a rapid, segmented diamond detection and autonomous data acquisition for the full 160 MeV beam energy at Linac4 will be presented.	3 Technology	3G Beam Diagnostics			20	1	0	0	0	0	0	CH	CERN	CERN	3 Technology	3G Beam Diagnostics		
1480	Results from the comissioning of the FETS RFQ at RAL	Alan Letchford	Juergen Pozimski	Science and Technology Facilities Council (STFC/RAL)	UK	Jürgen Klaus Pozimski (Imperial College of Science and Technology London London)	46	The Front End Test Stand (FETS) under construction at RAL is a demonstrator of front end systems for future high power proton linacs. Possible applications include a linac upgrade for the ISIS spallation neutron source, new future neutron sources, accelerator driven sub-critical systems, high energy physics proton drivers etc. Designed to deliver a 60mA H-minus beam at 3MeV with a 10% duty factor, FETS consists of a high brightness surface plasma ion source, magnetic solenoid low energy beam transport (LEBT), 4-vane 324MHz radio frequency quadrupole and medium energy beam transport (MEBT) containing a high speed beam chopper and nondestructive laser diagnostics. The current status of the project, the results of the RFQ comissioning and future plans will be presented.	2 Proton and Ion Accelerators and Applications	2C RFQs			20	1	0	0	0	0	0	UK	Science and Technology Facilities Council (STFC/RAL)	Science and Technology Facilities Council (STFC/RAL)	2 Proton and Ion Accelerators and Applications	2C RFQs		
1504	Trends in normal conducting linacs: technology, projects and applications	Frank Gerigk		CERN	CH	Alberto Facco (INFN)	47	A review on trends in normal conducting linacs for protons, ions and electrons, with emphasis on new technologies and applications	2 Proton and Ion Accelerators and Applications	2D Room temperature structures			30	1	0	0	0	0	0	CH	CERN	CERN	2 Proton and Ion Accelerators and Applications	2D Room temperature structures		
2000	State of the art status and future of RF sources for linacs	Erk Jensen	Eric Montesinos (CERN), Wolfgang Vinzenz (GSI)	CERN	CH	WG3	48	This talk will present a broad overview of the state of the art of RF technology for linear particle accelerators, covering the all frequency, power level and duty factor range; and will also present the outlook and opportunities for future development.	3 Technology	3C RF Power Sources and Power Couplers			30	1	0	0	0	0	0	CH	CERN	CERN	3 Technology	3C RF Power Sources and Power Couplers		