

# **TTC 2019, TESLA Technology Collaboration**

Tuesday 05 February 2019 - Friday 08 February 2019

AMS Student Nest, UBC Campus

## **Book of Abstracts**



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**Opening Plenary Session / 0**

**Welcome, Introduction, Logistics**

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**Opening Plenary Session / 1**

**TTC Chairman's Report**

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**Opening Plenary Session / 2**

**TRIUMF overview and SRF activities**

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**Opening Plenary Session / 3**

**FRIB Cavity Performance Statistics and Lessons Learned**

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**Plenary Session 2 / 5**

**Summary of Recent Progress in High Q and High Gradient Research**

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**Plenary Session 2 / 6**

**LCLS-II – the Issues and Path Forward**

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**Plenary Session 2 / 7**

## **First Crabbing of a Proton Beam**

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**Plenary Session #3 / 9**

## **Report from the Second Topical Workshop on Microphonics, LLRF Workshop Series, Brooklyn, NY, October 25-26, 2018**

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**Plenary Session #3 / 10**

## **Report from the 8th International Workshop on Thin Films and New Ideas for Pushing the Limits of RF Superconductivity, INFN/Legnaro, October 8-10, 2018**

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**Plenary Session #3 / 11**

## **Report from the TTC/ARIES topical workshop on flux trapping and magnetic shielding, CERN, November 8-9, 2018**

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**Closing Plenary Session / 12**

## **WG1 Report**

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**Closing Plenary Session / 13**

## **WG2 Report**

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**Closing Plenary Session / 14**

## **WG3 Report**

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**Closing Plenary Session / 15**

## **WG4 Report**

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**Closing Plenary Session / 16**

## **Technical Board Report**

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**Closing Plenary Session / 17**

## **Chairman's Report**

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**Closing Plenary Session / 18****Closing Remarks**LAXDAL, Robert<sup>1</sup><sup>1</sup> *TRIUMF*

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**Seminar Session / 19****muSR and beta-NMR - probing the superconducting state**KIEFL, Rob<sup>1</sup><sup>1</sup> *UBC/TRIUMF*

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**Seminar Session / 20****First Science from XFEL**BARTY, Anton<sup>1</sup><sup>1</sup> *CFEL***WG1 Session 1 / 21****Long Term Operation of a Large Ensemble of SRF Cavities in CEBAF**FREYBERGER, Arne<sup>1</sup><sup>1</sup> *JLab*

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**WG1 Session 1 / 22****Overview of 12 year operation of the SCL at SNS**Mr. MAMMOSSER, John<sup>1</sup> ; KIM, Sang-Ho<sup>2</sup><sup>1</sup> *SNS*<sup>2</sup> *ORNL*

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**WG1 Session 1 / 23****Summary of the maximum SCRF voltage in XFEL**Dr. WALKER, Nicholas<sup>1</sup><sup>1</sup> *DESY*

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**WG1 Session 1 / 25**

## **Operation and performance limits of the LHC cryomodule**

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**WG1 Session 2 / 26**

## **Long term experience at INFN Legnaro**

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**WG1 Session 2 / 27**

## **Experience with LCLS-II Cavity and Cryomodule Tests at Fermilab**

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**WG1 Session 2 / 28**

## **Field Emission and Mitigation in the CEBAF Linacs**

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**WG1 Session 2 / 29**

## **Exceptional events during operation of the European XFEL**

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**WG1 Session 2 / 30**

## **Operational Experience of Cavity/CMs in ISAC-II QWR Linac**

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**WG1 Session 3 / 31**

## **LLRF system performance limiting factors during CW operation of high QI cavities cryomodule**

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**WG1 Session 3 / 33**

## **LLRF compensation and mitigation of two cavity instability**

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**WG1 Session 3 / 34**

## **CEBAF C100 Fault Classification Based on Time Domain RF Signals**

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**WG1 Session 3 / 35**

## **Long Term Experience with SRF Linac at ELBE**

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**WG1 Session 4 / 36**

## **The 8T solenoid and the local magnetic shielding in the FRIB cryomodules**

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**WG1 Session 4 / 37****Comparison of 4K/2K operation performance in CEBAF injector cryomodules**Dr. EREMEEV (JLAB), Grigory<sup>1</sup><sup>1</sup> *Jefferson Lab*

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**WG1 Session 4 / 38****Experience with the CeC PoP 4K 1/4 Wave Photocathode Gun and 2K 5-Cell Cavity at RHIC**SMITH, Kevin<sup>1</sup><sup>1</sup> *BNL*

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**WG1 Session 4 / 39****Experience with cryogenics induced microphonics in LCLS-II cryomodules**Mr. PETERSON, Tom<sup>1</sup><sup>1</sup> *SLAC*

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**WG1 Session 4 / 40****Commissioning of 704MHz SRF booster cavity for LEReC**XU, Wencan<sup>1</sup><sup>1</sup> *BNL*

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**WG3 Session 1 / 41****Results of N-infusion at KEK new furnace**Mr. UMEMORI, Kensei<sup>1</sup><sup>1</sup> *KEK*

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**WG3 Session 1 / 42****Cryo-AFM R&D**SUNG, Zhuawn<sup>1</sup>

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**WG3 Session 1 / 43**

## **Infusion R&D at DESY**

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**WG3 Session 1 / 44**

## **JLab work on low(er) temperature near-surface diffusion post 800C(or higher) anneal of Nb - aka "infusion"**

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**WG3 Session 1 / 45**

## **Infusion R&D at Cornell**

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**WG3 Session 2 / 46**

## **The LCLS-II HE High Q and Gradient R&D Program**

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**WG3 Session 2 / 47**

## **Quench studies in single and multicell N-doped cavities**

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**WG3 Session 2 / 48**

## **LCLS-II Doping / High Q/Gradient - Jlab**

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**WG3 Session 2 / 49**

## **Thermal diffusivity measurements on niobium**

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**WG3 Session 2 / 50**

## **N doping results on 650 MHz cavities**

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**WG3 Session 3 / 51**

## **Discussion of Questionnaire**

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**WG3 Session 3 / 52**

## **Low T baking studies for KEK cavities**

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**WG3 Session 3 / 53**

## **Low T Bake - cool down studies**

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**WG3 Session 3 / 54**

## **Baking R&D at DESY**

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**WG3 Session 3 / 55**

## Low T Bake Cornell

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**WG3 Session 4 / 56**

## Low $\beta$ Cavity Performance Improvement Studies using Multimode Resonators

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**WG3 Session 4 / 57**

## Frequency dependence studies of Nb<sub>3</sub>Sn cavities

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**WG3 Session 4 / 58**

## Update on Nb<sub>3</sub>Sn R&D at Cornell

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**WG3 Session 4 / 59**

## Nb/Cu by energetic condensation and SIS multilayers

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**WG3 Session 4 / 60**

## Discussion



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**WG2 Session 1 / 61**

## **Introduction WG2**

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**WG2 Session 1 / 62**

## **Field emission study on cERL main linac cryomodule**

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**WG2 Session 1 / 63**

## **Field emission studies for ESS prototipe cryomodules and vertical test diagnostic**

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**WG2 Session 1 / 64**

## **Plans for beam-loss and field-emission detection in LCLS-2**

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**WG2 Session 1 / 65**

## **Overview on coupler protection**

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**WG2 Session 2 / 66**

## **Robotic High Pressure Rinsing of Complex Geometry SRF Cavities**

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**WG2 Session 2 / 67**

## **The use of robotics in cavity preparation and assembly procedures**

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**WG2 Session 2 / 68**

## **Plasma cleaning development for LCLS-II cavities**

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**WG2 Session 2 / 69**

## **T-mapping, B-measurements and vertical diagnostics at Cornell**

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**WG2 Session 2 / 70**

## **INFN-LASA experience on vertical cold test diagnostics**

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**WG2 Session 3 / 71**

## **Combined magnetometric and thermometric characterisation of a TESLA type cavity cooled down in an external magnetic field**

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**WG2 Session 3 / 72****Transition Edge Sensors for Thermal Mapping as a diagnostics tool on bulk Niobium SRF Cavities**VANDONI, Giovanna<sup>1</sup><sup>1</sup> *CERN*

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**WG2 Session 3 / 73****Magnetic field sensors and measurements in cryomodules**WU, Genfa<sup>1</sup><sup>1</sup> *FNAL*

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**WG2 Session 3 / 74****Three Axis Helmholtz coil Configuration for Flux Trapping Studies at TRIUMF**COTE, Andrew<sup>1</sup><sup>1</sup> *UBC***WG2 Session 3 / 75****Magnetic Field Diagnostics at the DESY Vertical Teststands**Mr. WENSKAT, Marc<sup>1</sup><sup>1</sup> *DESY*

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**WG2 Session 4 / 76****HF-free bipolar EP - progress unraveling the mechanism and optimizing for multi-cell cavities**REECE, Charles<sup>1</sup> ; TIAN, Hui<sup>1</sup><sup>1</sup> *JLab***WG2 Session 4 / 77****Cavity etching via rf Ar/Cl plasma**PESHL, Jeremy<sup>1</sup><sup>1</sup> *ODU*

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**WG2 Session 4 / 78**

## **Green processing of cavities via vibro-tumbling**

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**WG2 Session 4 / 79**

## **Vertical EP and green EP progress at Cornell**

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**WG2 Session 4 / 80**

## **EP Developments at TRIUMF**

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**WG4 Session 1 / 81**

## **Lessons learned from LCLS-II shipments**

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**WG4 Session 1 / 83**

## **Lessons learned from LHC and other magnet shipments**

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**WG4 Session 1 / 84**

## **Adaptation of cryomodule shakers, truck trailer shakers, etc.**

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**WG4 Session 1 / 85**

## **Transportation of cryomodule from Vancouver to Kolkata**

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**WG4 Session 1 / 86**

## **Cryomodule instrumentation and diagnostics for transport**

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**WG4 Session 2 / 87**

## **Comparison between warm strongback, spaceframe, DESY-style, etc.**

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**WG4 Session 2 / 88**

## **Crab cavity cryostat design, cavity support, and alignment**

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**WG4 Session 2 / 89**

## **Top loading vs. "Butter dish" design for quarter and half-wave cavity cryostats**

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**WG4 Session 3 / 90****SNS and LCLS-II at Jefferson Lab**HUQUE, Naeem<sup>1</sup><sup>1</sup> *JLAB***Corresponding Author(s):** huque@jlab.org**WG4 Session 3 / 91****SRF cavity and cryomodule conceptual designs for eRHIC**HOLMES, Douglas<sup>1</sup><sup>1</sup> *BNL***Corresponding Author(s):** dholmes@bnl.gov**WG4 Session 3 / 92****Design, assembly, transportation of the cryomodule for SRI-LAC, heavy-ion, CW**Dr. SAKAMOTO, Naruhiko<sup>1</sup><sup>1</sup> *RIKEN Nishina Center***Corresponding Author(s):** nsakamot@ribf.riken.jp**WG4 Session 3 / 93****Conceptual Cryomodule Design for the CW Helmholtz Linear Accelerator at GSI**Dr. DZIUBA, Florian<sup>1</sup><sup>1</sup> *Helmholtz Institute Mainz***Corresponding Author(s):** f.dziuba@gsi.de**WG4 Session 3 / 94****Support post failure in CM2 (ILC-style cryomodule) at Fermilab**Mr. NICOL, Thomas<sup>1</sup><sup>1</sup> *Fermilab***Corresponding Author(s):** tnicol@fnal.gov**WG4 Session 4 / 95****Flow-induced microphonics**Mr. PETERSON, Tom<sup>1</sup> ; KALUZNY, Josh<sup>2</sup>

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**WG4 Session 4 / 96**

## **Design differences for CW and pulsed operation**

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**WG4 Session 4 / 97**

## **Design issues of main cryomodule for cERL, CW operation**

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**WG4 Session 4 / 98**

## **Component shipping tests**

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**WG4 Session 4 / 99**

## **Microphonics measurements on ARIEL e-LINAC cryomodule**

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**WG1 Session 1 / 100**

## **Discussion**

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**WG1 Session 3 / 101**

## **Discussion**

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**Hot Topic Session / 102**

## **Slides for discussion**

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**WG2 Session 1 / 103**

## **SRF CAVITY R&D at SHINE**