Workshop on Cryogenic Operations

Tuesday 25 October 2016 - Thursday 27 October 2016
Wilson Hall

Book of Abstracts
# Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARIEL e-linac 2K Cryogenic System: First Operational Experience</td>
<td>40</td>
</tr>
<tr>
<td>LHC Cryogenics availability and helium management from Run 1 to Run 2</td>
<td>41</td>
</tr>
<tr>
<td>SNS Helium Cryogenic Plant Instrument and Controls Experience and</td>
<td>42</td>
</tr>
<tr>
<td>Future Considerations</td>
<td></td>
</tr>
<tr>
<td>Cryogenics of the Target at ESS</td>
<td>43</td>
</tr>
<tr>
<td>Oil contamination of cryogenic systems</td>
<td>44</td>
</tr>
<tr>
<td>Oil contamination of cryogenic systems</td>
<td>45</td>
</tr>
<tr>
<td>Cleaning and consolidation of the CMS helium refrigerator after</td>
<td>46</td>
</tr>
<tr>
<td>hydrocarbon contamination</td>
<td></td>
</tr>
<tr>
<td>Cleaning and consolidation of the CMS helium refrigerator after</td>
<td>47</td>
</tr>
<tr>
<td>hydrocarbon contamination</td>
<td></td>
</tr>
<tr>
<td>RHIC COLLIDER Operations</td>
<td>48</td>
</tr>
<tr>
<td>Vibration monitoring of the rotating machines of the CERN cryogenic</td>
<td>49</td>
</tr>
<tr>
<td>systems</td>
<td></td>
</tr>
<tr>
<td>MicroBooNE Experience: Operations of the cryogenic system for the</td>
<td>50</td>
</tr>
<tr>
<td>Fermilab Micro-BooNE Liquid Argon</td>
<td></td>
</tr>
<tr>
<td>35 ton LAr Cryostat Experience - Run 2 and strategies to prevent</td>
<td>51</td>
</tr>
<tr>
<td>inadvertent purity degradation</td>
<td></td>
</tr>
<tr>
<td>Icarus Operations Experience</td>
<td>52</td>
</tr>
<tr>
<td>Asphyxiation due to oxygen depletion atmospheres</td>
<td>53</td>
</tr>
<tr>
<td>Comparison of Different ODH Analysis Techniques</td>
<td>54</td>
</tr>
<tr>
<td>Oxygen Deficiency Sensor Test Results</td>
<td>55</td>
</tr>
<tr>
<td>Membrane cryostat for cryogenic liquid</td>
<td>56</td>
</tr>
<tr>
<td>Turbo-Brayton (as a solution to refrigerate LAr calorimeter)</td>
<td>57</td>
</tr>
<tr>
<td>Cryogenic Cooling</td>
<td>58</td>
</tr>
<tr>
<td>SLAC, LCLS-II (Linac Coherent Light Source II) X-ray free-electron</td>
<td>59</td>
</tr>
<tr>
<td>laser</td>
<td>3</td>
</tr>
</tbody>
</table>
Operations and Maintenance Experience of LHe Systems (I) / 40

ARIEL e-linac 2K Cryogenic System: First Operational Experience

Operations and Maintenance Experience of LHe Systems (I) / 41

LHC Cryogenics availability and helium management from Run 1 to Run 2
FERLIN, Gerard

1 CERN

Operations and Maintenance Experience of LHe Systems (I) / 42

SNS Helium Cryogenic Plant Instrument and Controls Experience and Future Considerations
Mr. HOWELL, Matthew

1 Oak Ridge National Laboratory

Operations and Maintenance Experience of LHe Systems (I) / 43

Cryogenics of the Target at ESS

44

Oil contamination of cryogenic systems

Operations and Maintenance Experience of LHe Systems (I) / 45

Oil contamination of cryogenic systems

Operations and Maintenance Experience of LHe Systems (I) / 46

Cleaning and consolidation of the CMS helium refrigerator after hydrocarbon contamination

47

Cleaning and consolidation of the CMS helium refrigerator after hydrocarbon contamination
Operations and Maintenance Experience of LHe Systems (I) / 48

**RHIC COLLIDER Operations**

49

Vibration monitoring of the rotating machines of the CERN cryogenic systems

Operations and Maintenance Experience of LAr Systems (I) / 50

**MicroBooNE Experience: Operations of the cryogenic system for the Fermilab MicroBooNE Liquid Argon**

Operations and Maintenance Experience of LAr Systems (I) / 51

35 ton LAr Cryostat Experience - Run 2 and strategies to prevent inadvertent purity degradation

Operations and Maintenance Experience of LAr Systems (I) / 52

**ICARUS Operations Experience**

Safety / 53

**Asphyxiation due to oxygen depletion atmospheres**

Safety / 54

**Comparison of Different ODH Analysis Techniques**

Safety / 55

**Oxygen Deficiency Sensor Test Results**

Operations and Maintenance Experience of LAr Systems (II) / 56

**Membrane cryostat for cryogenic liquid**
Operations and Maintenance Experience of LAr Systems (II) / 57

**Turbo-Brayton (as a solution to refrigerate LAr calorimeter)**

Operation of SRF & SCMSystems (I) / 58

**Cryogenic Cooling**

Operation of SRF & SCMSystems (I) / 59

**SLAC , LCLS-II (Linac Coherent Light Source II) X-ray free-electron laser**

Operation of SRF & SCMSystems (I) / 60

**GENERAL DESIGN TESTING AND OPERATION OF SC MAGNET SYSTEMS - SPHENIX DETECTOR**

61

**ESS high beta cavity horizontal Test in a Vertical Cryostat**

62

**Fermilab VMTF Operations Experience**

63

**Helium Pump Commissioning Experience**

64

**LCLS-II**

65

**ESS**
Operations and Maintenance Experience of LHe Systems (I) / 66

Vibration monitoring of the rotating machines of the CERN cryogenic systems Mr. Olivier Pirotte

74

Workshop Dinner - Two Brothers Brewery

Poster Session I / 75

Cryogenic Infrastructure at TRIUMF: Overview of the Upgrades
Poster #: 1

Poster Session I / 76

Upgrade of TRIUMF’s Liquid Nitrogen Infrastructure
Poster #: 2

Poster Session I / 77

Cryoplants at Helmholtz Zentrum Berlin
Poster #: 3

Poster Session I / 78

General design testing and operation of SC magnet systems - Electron Lenses
Poster #: 4

Poster Session I / 79

SRF Operating experience: Cavity detuning from helium microphonics/vibration pulses - 704MHz 5-cell elliptical SRF CAVITY at 2.0K
Poster #: 5

Poster Session I / 80

Study of sudden loss of vacuum in a tube cooled by liquid helium
Poster #: 6

Poster Session I / 81
Reliability of Cryogenic Valves evaluated after revision of a 30-years old plant

Operations and Maintenance Experience of LHe Systems (II) / 82
General design testing and operation of SC magnet systems - RHIC collider operations

Operations and Maintenance Experience of LHe Systems (II) / 83
Vibration monitoring of the rotating machines of the CERN cryogenic systems

Poster Session II / 84
TBA

Poster #: 8

Poster Session II / 85
TBA

Poster #: 9

Poster Session II / 86
Design of Cryogenic System for SBN Near Detector

Poster #: 10

Poster Session II / 87
Investigations of Purge and Cooldown Options for Liquid Argon Cryostats through CFD Analysis

Poster #: 11

Poster Session II / 88
Overview of the Long-Baseline Neutrino Facility cryogenic system
Poster #: 12

Poster Session II / 89
Overview of the cryogenic system for the ProtoDUNE Single Phase and Dual Phase prototypes at CERN

Poster #: 13

Poster Session II / 90
Low Energy RHIC electron Cooling (LEReC) 704MHz SRF cavity superfluid thermal analysis using ANSYS 17

Poster #: 14

Operation of SRF & SCMSystems (I) / 91
ESS high beta cavity horizontal Test in a Vertical Cryostat

Operation of SRF & SCMSystems (I) / 92
Operational Experience of the Fermilab Vertical Test Facilities

Operation of SRF & SCMSystems (I) / 93
SNS Cryogenic Test Facility Kinney Vacuum Pump Commissioning and Operation at 2 K

Operation of SRF & SCM Systems (II) / 94
LCLS-II cryogenic system commissioning

Operation of SRF & SCM Systems (II) / 95
LHC Cryogenics Operation: post-LS1 restart and main achievements of Run 2

96
Helium Liquefier Plant at Cryo-Technology Division (CrTD)
97
Shaft Seal Systems of Rotary Equipment in Cryogenic Plants

98
Cryogenic controls for the RAON SRF test facility

99
Performance Mapping of the CLS SRF Cryoplant

100
Design of a Multiple-function Cryogenic System for Superconducting Devices in SSRF Upgrade

101
Commissioning of the cryogenic system for SRF Test Facility of RAON

102
SRF Operating experience: Cavity detuning from helium microphonics/vibration pulses - 56MHz SRF CAVITY at 4.5K

103
SRF Operating experience: Cavity detuning from helium microphonics/vibration pulses - 112MHz SRF CAVITY at 4.5K

106
Commissioning of the cryogenic system for SRF Test Facility of RAON
Helium Liquefier Plant at Cryo-Technology Division (CrTD)

Poster #: 16

Poster Session III / 108
Shaft Seal Systems of Rotary Equipment in Cryogenic Plants

Poster #: 17

Poster Session III / 109
Cryogenic controls for the RAON SRF test facility

Poster #: 18

Poster Session III / 110
Performance Mapping of the CLS SRF Cryoplant

Poster #: 19

Poster Session III / 111
Design of a Multiple-function Cryogenic System for Superconducting Devices in SSRF Upgrade

Poster #: 20

Poster Session III / 112
Commissioning of the cryogenic system for SRF Test Facility of RAON

Poster #: 21

Poster Session III / 113
SRF Operating experience: Cavity detuning from helium microphonics/vibration pulses - 56MHz/112MHz SRF CAVITY at 4.5K

Poster #: 22

Poster Session III / 114
SRF Operating experience: Cavity detuning from helium microphonics/vibration pulses - 112MHz SRF CAVITY at
4.5K
Poster #: 23

Poster Session I / 115
Reliability of Cryogenic Valves evaluated after revision of a 30-years old plant
Poster #: 7

Poster Session II / 116
Annual Maintenance of CHL2 Compressors
Poster #: 15

117
Test
Poster # 1

Operation of SRF & SCM Systems (II) / 120
TBA

Operation of SRF & SCMSYSTEMS (I) / 121

PIP-II Project Overview

Operations and Maintenance Experience of LAr Systems (I) / 122

LBNF Talk

Daily Summary / 123
Summary

Corresponding Author(s): shrikant.pattalwar@stfc.ac.uk

Daily summary / 124
Summary
Workshop Summary / 125

Summary

Poster Session Summary / 126

Poster Session Summary

Poster Session Summary / 127

Poster Session Summary