

# 12<sup>TH</sup> WORLD CONFERENCE ON NEUTRON RADIOGRAPHY WCNR-12

## SCHEDULE

**SUNDAY, 02 JUNE 2024**

### **WALKING DISCUSSION**

<b>7:35</b>	PICK UP AT HOTEL
<b>8:00</b>	DEPART TO YELLOWSTONE NATIONAL PARK
<b>11:30</b>	LUNCH
<b>12:00</b>	<b>WALKING DISCUSSION</b> (OLD FAITHFUL)
<b>13:30</b>	DEPART OLD FAITHFUL
<b>16:55</b>	ARRIVE AT HOTEL

### **17:00 PRE-REGISTRATION / EXHIBITOR SETUP**

<b>18:00</b>	<b>ISNR BOARD MEETING</b>
--------------	---------------------------

### **19:00 WELCOME RECEPTION (HILTON GARDEN INN CONFERENCE CENTER)**

# MONDAY, 03 JUNE 2024

7:00	REGISTRATION & POSTER SETUP (SESSION A)
8:00	WELCOME & ANNOUNCEMENTS

## OPENING SESSION

8:10	OPENING SPEAKER – <b>JOSEPH BEVITT</b> <i>NEUTRON TOMOGRAPHY AND THE VIRTUAL WORLD OF PALEONTOLOGY</i>
8:35	<b>AARON CRAFT</b> <i>DIGITAL NEUTRON IMAGING OF IRRADIATED NUCLEAR FUELS AT IDAHO NATIONAL LABORATORY</i>

## FACILITY OVERVIEWS

CHAIR: BURKHARD SCHILLINGER

9:00	<b>ULF GARBE</b> <i>10 YEARS OF USER OPERATION ON DINGO AT OPAL</i>
9:25	<b>MARKUS STROBL</b> <i>ADVANCES IN NEUTRON IMAGING TECHNIQUES AND APPLICATIONS AT PSI</i>
9:50	<b>MICHAEL SCHULZ</b> <i>RECENT ADVANCES IN NEUTRON IMAGING AT FRM II</i>
10:15	BREAK

## NDT & STANDARDS

CHAIR: AARON CRAFT

10:45	<b>HASSAN MALIK</b> <i>OPTIMIZATION OF GADOLINIUM CONTRAST ENHANCEMENT FOR IMPROVED NEUTRON RADIOGRAPHY OF CERAMIC CORE MATERIALS IN JET ENGINE TURBINE BLADES</i>
11:05	<b>RANGGI RAMADHAN</b> <i>STRAIN MAPPING USING BRAGG EDGE IMAGING: PRELIMINARY ROUND-ROBIN CAMPAIGN</i>
11:25	<b>MARTIN WISSINK</b> <i>COMMERCIAL NEUTRON IMAGING WITH AN ACCELERATOR-BASED NEUTRON SOURCE</i>
11:45	<b>JOSHUA VANDERSTELT</b> <i>AN OVERVIEW OF CURRENT AND FUTURE ASTM NEUTRON IMAGING STANDARDS</i>
12:05	POSTER PITCHES - SESSION A
12:30	LUNCH
14:00	POSTER SESSION B
16:00	BREAK

## ADVANCED TECHNIQUES

CHAIR: ANTON TREMSIN

<b>16:30</b>	<b>KRYSTYNA LOPEZ</b> <i>SEARCHING FOR EXOTIC POLARIZED NEUTRON-POLARIZED ELECTRON INTERACTIONS USING NEUTRON IMAGING</i>
<b>16:50</b>	<b>BURKHARD SCHILLINGER</b> <i>A VERTICAL NEUTRON BEAM DEVICE USED TO EXAMINE LIQUIDS</i>
<b>17:10</b>	<b>ADRIAN LOSKO</b> <i>ADVANCEMENTS IN IMAGING DETECTORS BASED ON EVENT MODE DATA ACQUISITION</i>
<b>17:30</b>	<b>SU ANN CHONG</b> <i>NEUTRON-SENSITIVE MICROCHANNEL PLATES WITH QUAD TIMEPIX3 READOUT (MCP/TPX3) DETECTOR FOR TIME-OF-FLIGHT NEUTRON IMAGING</i>
<b>17:50</b>	<b>ALEXANDER M. LONG</b> <i>UNLOCKING THE POTENTIAL OF EVENT-BASED NEUTRON IMAGING SYSTEMS FOR ENERGY RESOLVED NEUTRON IMAGING AT LANSCE</i>
<b>18:10</b>	ADJOURN
<b>18:15</b>	<b>ASTM E07.05 MEETING</b>

# TUESDAY, 04 JUNE 2024

7:00	<b>POSTER SETUP (SESSION B)</b>
8:00	WELCOME & ANNOUNCEMENTS

## MATERIAL SCIENCE CHAIR: PAVEL TRTIK

8:10	<b>SHIEREN SUMARLI</b> <i>NEUTRON RADIOGRAPHY TECHNIQUES FOR OPERANDO STUDIES DURING LASER POWDER BED FUSION</i>
8:30	<b>AXEL GRIESCHE</b> <i>CRYSTALLOGRAPHIC PHASE TRANSFORMATIONS AND CORRESPONDING TEMPERATURE DISTRIBUTIONS DURING GTAW OF SUPERMARTENSITIC STAINLESS STEEL VISUALIZED BY NEUTRON BRAGG EDGE IMAGING</i>
8:50	<b>LESLIE G. BUTLER</b> <i>FRICTION STIR ADDITIVE MANUFACTURING: NEUTRON INTERFEROMETRY AND BRAGG EDGE IMAGING</i>
9:10	<b>WINFRIED KOCKELMANN</b> PRESENTING FOR <b>SAURABH KABRA</b> <i>STROBOSCOPIC BRAGG EDGE RADIOGRAPHY OF TWIN FORMATION IN A MAGNETIC SHAPE MEMORY ALLOY</i>
9:30	<b>ANTON TREMSIN</b> <i>OPTIMIZATION OF LIQUID-SOLID INTERFACE AND THE TRANSLATION SPEED FOR CRYSTAL GROWTH THROUGH ENERGY-RESOLVED NEUTRON IMAGING</i>
9:50	<b>BREAK</b>

## ENGINEERING CHAIR: HASSINA BILHEUX

10:20	<b>THAWATCHART CHULAPAKORN</b> <i>DEFORMATION STRUCTURES IN STEEL REVEALED BY NEUTRON IMAGING</i>
10:40	<b>DAISUKE ITO</b> <i>MEASUREMENT OF BOILING TWO-PHASE FLOW PATTERN DYNAMICS USING HIGH-SPEED NEUTRON IMAGING</i>
11:00	<b>TAKENAO SHINOHARA</b> <i>PULSED NEUTRON IMAGING STUDY OF ENERGY-RELATED DEVICES FOR AUTOMOTIVE VEHICLES</i>
11:20	<b>DAVID MANNES</b> <i>CORINT -- AN INTERDISCIPLINARY RESEARCH PROJECT ON CORROSION PHENOMENA AND MULTI-MODAL TOMOGRAPHY</i>
11:40	<b>FREDERIK OSSLER</b> <i>NEUTRON IMAGING TO STUDY THE INTERACTION BETWEEN HYDROGENOUS SUBSTANCES AND POROUS CARBON MATERIALS AND HYDROGEN RELEASE IN BIOMASS PYROLYSIS</i>
12:00	POSTER PITCHES - SESSION B
12:30	<b>GROUP PHOTO</b>
12:40	<b>LUNCH</b>

14:00	<b>POSTER SESSION B</b>
16:00	<b>BREAK</b>

## **FACILITY UPGRADES**

**CHAIR: JEAN BILHEUX**

16:30	<b>ALESSANDRO TENGATTINI</b> <i>NEXT 2.0, THE NEUTRON AND X-RAY TOMOGRAPH AT ILL</i>
16:50	<b>YUXUAN ZHANG</b> <i>GRATING INTERFEROMETRY IMAGING AT THE HIGH FLUX ISOTOPE REACTOR</i>
17:10	<b>ROBERT NSHIMIRIMANA</b> <i>OPTIMIZATION OF NEUTRON COLLIMATOR AND SHIELDING FOR THE REFURBISHMENT OF THE NEUTRON IMAGING FACILITY AT NECSA</i>

## **SOFTWARE AND MACHINE LEARNING**

**CHAIR: JEAN BILHEUX**

17:30	<b>QIANRU ZHAN</b> <i>ENHANCING NEUTRON TOMOGRAPHY FOR CORROSION ANALYSIS: A MACHINE LEARNING APPROACH FOR NOISE REDUCTION AND DETAIL ENHANCEMENT</i>
17:50	<b>MOHAMMAD SAMIN NUR CHOWDHURY</b> <i>SUBSPACE EXTRACTION ALGORITHM FOR HIGH-QUALITY RECONSTRUCTIONS IN HYPERSPECTRAL NEUTRON COMPUTED TOMOGRAPHY</i>
18:10	<b>SHIMIN TANG</b> <i>HYPERCT: AN ARTIFICIAL INTELLIGENCE ADAPTIVE HYPERSPECTRAL NEUTRON COMPUTING TOMOGRAPHY SYSTEM</i>
18:10	ADJOURN
18:15	<b>PRESENTATIONS FOR WCNR-13 &amp; BOARD ELECTIONS</b>

# WEDNESDAY, 05 JUNE 2024

8:00	WELCOME & ANNOUNCEMENTS
------	-------------------------

## ENERGY & ENVIRONMENT

CHAIR: DANIEL HUSSEY

8:10	<b>MAHA YUSUF</b> <i>IN-SITU, NON-DESTRUCTIVE, 3D NEUTRON IMAGING OF LITHIUM PLATING FOLLOWING EXTREME FAST-CHARGING OF FULL-CELL LITHIUM-ION BATTERIES</i>
8:30	<b>ANDERS KAESTNER</b> <i>TOMOGRAPHIC STUDY OF RHIZOBOX DYNAMICS</i>
8:50	<b>CEDRIC QVISTGAARD</b> <i>WHITE BEAM POLARIZED NEUTRON IMAGING OF WEAK ION CURRENTS IN ENERGY DEVICES VIA INDUCED MAGNETIC FIELDS</i>
9:10	<b>YUTO OBAYASHI</b> PRESENTING FOR <b>HIDEKI MURAKAWA</b> <i>VISUALIZATION OF LIQUID WATER BEHAVIOR IN A POLYMER ELECTROLYTE FUEL CELL UNDER HIGH-TEMPERATURE OPERATION USING A NEUTRON RADIOGRAPHY</i>
9:30	BREAK

## NEW FACILITIES

CHAIR: TAKENAO SHINOHARA

10:00	<b>JANA MATOUSKOVA</b> <i>TRIXIE -- DEVELOPMENT AND CONSTRUCTION OF A NEW NEUTRON IMAGING INSTRUMENT IN THE CZECH REPUBLIC</i>
10:20	<b>ANDREAS MEYER</b> <i>A NEW THERMAL NEUTRON IMAGING INSTRUMENT AT THE INSTITUT LAUE LANGEVIN</i>
10:40	<b>AFAF OUARDI</b> <i>FINAL DESIGN OF NEUTRON IMAGING SYSTEM "NERA" AT THE MAAMORA REACTOR</i>
11:00	<b>NAOYA ODAIRA</b> <i>EXPERIMENTS AND NUMERICAL SIMULATIONS ON FAST NEUTRON IMAGING</i>
11:20	<b>FREDERICO A. GENEZINI</b> <i>NEUTRON RADIOGRAPHY AT THE ENERGY AND NUCLEAR RESEARCH INSTITUTE/BRAZIL - IPEN: THE STORY SO FAR AND FUTURE PERSPECTIVES</i>
11:40	<b>MANUEL MORGANO</b> <i>ODIN @ESS: COMMISSIONING OF THE INSTRUMENT</i>
12:00	<b>HASSINA BILHEUX</b> <i>COMMISSIONING THE VENUS IMAGING BEAMLINE AT THE SPALLATION NEUTRON SOURCE</i>
12:20	LUNCH

## VENUS PLENARY

CHAIR: HASSINA BILHEUX

14:00	<b>AARON HANKS</b> <i>THE CONSTRUCTION OF THE VENUS IMAGING INSTRUMENT AT THE SPALLATION NEUTRON SOURCE: THE ENGINEERING PERSPECTIVE</i>
-------	---

<b>14:30</b>	<b>JEAN BILHEUX</b> <i>DATA WORKFLOW AND SOFTWARE TOOLS AT VENUS</i>
<b>15:00</b>	<b>ANTON TREMSIN</b> <i>OVERVIEW OF SCIENCE CAPABILITIES OF VENUS BEAMLINE</i>
<b>15:30</b>	<b>ADRIAN BRUEGGER</b> <i>THE FUTURE CUPID BEAMLINE AT THE STS: A GENERAL UPDATE INCLUDING OPTICS DESIGN</i>
<b>16:00</b>	<b>BREAK</b>

## **NUCLEAR ENGINEERING**

### **CHAIR: WINFRIED KOCKELMANN**

<b>16:30</b>	<b>SARAH WEICK</b> <i>IN-SITU NEUTRON RADIOGRAPHY WITH HYDROGENATED TENSILE SAMPLES IN THE INCHAMEL FACILITY</i>
<b>16:50</b>	<b>AARON COLLDEWEIH</b> <i>POST RAMP AND LOCA SIMULATION CHARACTERIZATION OF CR-COATED ZIRCALLOY-4</i>
<b>17:10</b>	<b>DAVID CHICHESTER</b> <i>THE FUEL MOTION MONITORING SYSTEM AT TREAT - CURRENT STATUS AND FUTURE PLANS</i>
<b>17:30</b>	<b>MARKUS STROBL</b> PRESENTING FOR <b>FLORENCIA MALAMUD</b> <i>SPATIALLY RESOLVED TEXTURE CHARACTERIZATION OF COLD-ROLLED ZIRCALLOY-4 CLADDING BY BRAGG EDGE IMAGING</i>
<b>17:50</b>	<b>YOUNGJU KIM</b> <i>OBSERVATION OF NANO-VOID COALESCENCE IN HYDROGEN-FATIGUED VESSEL STEEL USING NEUTRON DARK FIELD IMAGING</i>
<b>18:10</b>	<b>SVEN VOGEL</b> <i>PULSED NEUTRON CHARACTERIZATION OF IRRADIATED FUELS AT LANSCE</i>
<b>18:10</b>	<b>ADJOURN</b>

# THURSDAY, 06 JUNE 2024

8:00	WELCOME & ANNOUNCEMENTS
------	-------------------------

## CULTURAL HERITAGE

CHAIR: ULF GARBE

8:10	<b>EBERHARD LEHMANN</b> <i>HOW TO PERFORM CULTURAL HERITAGE RESEARCH BY USING NEUTRON IMAGING?</i>
8:30	<b>TUSHAR ROY</b> <i>CHARACTERIZATION OF ANCIENT INDIAN ARCHAEOLOGICAL ARTEFACTS USING NEUTRON IMAGING</i>
8:50	<b>OCSON COCEN</b> <i>INSIGHTS FROM NEUTRON AND X-RAY COMPUTED TOMOGRAPHY ANALYSIS ON ARCHAEOLOGICAL NAILS FROM BOIS DE CHATEL, AVENCHES, SWITZERLAND</i>
9:10	<b>JOSEPH BEVITT</b> <i>THE INVISIBLE REVEALED: CULTURAL FORENSICS WITH NEUTRONS AT THE POWERHOUSE MUSEUM</i>
9:30	BREAK

## DETECTORS

CHAIR: YASUSHI SAITO

9:45	<b>WILLIAM CHUIRAZZI</b> <i>BORON-BASED NEUTRON SCINTILLATOR SCREEN CHARACTERIZATION WITH X-RAYS AND NEUTRONS</i>
10:05	<b>BERNHARD WALFORT</b> <i>SCINTILLATION SCREENS FOR NEUTRON IMAGING</i>
10:25	<b>JAREK GLODO</b> <i>LOW-COST SCINTILLATOR COMPOSITES FOR THERMAL NEUTRON IMAGING</i>
10:45	BREAK

## NEUTRON GRATING INTERFEROMETRY / DARK FIELD IMAGING

CHAIR: MARKUS STROBL

11:00	<b>CAMILLA BUHL LARSEN</b> <i>ORIENTATION-DEPENDENT GRAIN LEVEL 3D STRAIN EVOLUTION IN OLIGOCRYSTALLINE CoNiGa</i>
11:20	<b>SIMON SEBOLD</b> <i>SHAPE AND SIZE DISTRIBUTION OF THE MAGNETIC DOMAIN STRUCTURE IN ELECTRICAL STEEL MEASURED WITH NEUTRON GRATING INTERFEROMETRY</i>
11:40	<b>ALEX BACKS</b> <i>OBSERVATION OF THE MACROSCOPIC MAGNETIC DOMAINS IN SILICON STEEL DURING MAGNETIZATION WITH POLARIZED NEUTRON IMAGING</i>
12:00	<b>ALALEH AMINZADEH</b> <i>NEUTRON DIFFUSIVE DARK-FIELD IMAGING USING A STRUCTURED MASK</i>
12:20	LUNCH <b>2<sup>ND</sup> BOARD MEETING WITH NEW BOARD MEMBERS (EXEC. CONF. ROOM)</b>

---

## NEUTRON OPTICS

CHAIR: ALESSANDRO TENGATTINI

<b>14:00</b>	<b>MANORAJ DHANALAKSHMI VEERARAJ</b> <i>DEVELOPMENT OF AN ACHROMATIC NEUTRON LENS</i>
<b>14:20</b>	<b>YASUSHI SAITO</b> <i>ENHANCEMENT OF SPATIAL RESOLUTION IN HIGH-SPEED NEUTRON IMAGING USING A MULTI-SLIT COLLIMATOR</i>
<b>14:40</b>	<b>DANIEL HUSSEY</b> <i>DEVELOPMENT PLANS FOR THE NIST COLD NEUTRON IMAGING INSTRUMENT</i>

**5:00**

## CONCLUSIONS & OUTLOOK

<b>15:30</b>	<b>BREAK</b>
<b>16:00</b>	TRAVEL TO CONFERENCE DINNER
<b>17:00</b>	<b>CONFERENCE DINNER AT EBR-1</b>
<b>19:30</b>	TRAVEL TO HOTEL

**FRIDAY, 07 JUNE 2024**

**INL FACILITIES TOUR**

<b>7:30</b>	TRAVEL TO MFC
<b>8:20</b>	PROCESS THROUGH SECURITY / WALK TO TOUR LOCATION
<b>8:40</b>	<b>ROTATING TOUR (TREAT / HFEF / IMCL)</b>
<b>9:40</b>	WALK TO NEXT TOUR LOCATION
<b>10:00</b>	<b>ROTATING TOUR (TREAT / HFEF / IMCL)</b>
<b>11:00</b>	WALK TO NEXT TOUR LOCATION
<b>11:20</b>	<b>ROTATING TOUR (TREAT / HFEF / IMCL)</b>
<b>12:20</b>	WALK TO LUNCH LOCATION
<b>12:40</b>	<b>LUNCH (PRESENTATION TBD)</b>
<b>13:40</b>	TRAVEL TO IDAHO FALLS