Feedback of the WORKSHOP session

Workshops organization chair: Christelle REYNARD-CARETTE

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Aix Marseille Univ, Faculté des Sciences, Filière Instrumentation, Marseille, France
Aix Marseille Univ, CNRS, CEA, ISFIN, Marseille, France

christelle.carette@univ-amu.fr

- FUNDAMENTAL PHYSICS
- SPACE SCIENCES AND TECHNOLOGY
- FUSION DIAGNOSTICS AND TECHNOLOGY
- RESEARCH REACTORS AND PARTICLE ACCELERATORS
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- CURRENT TRENDS IN DEVELOPMENT OF RADIATION DETECTORS

A bit of history

❑ Workshop session created in 2013

WORKSHOP EDITION N°1

1 TOPIC
- NUCLEAR HEATING

ANIMMA 2013, MARSEILLE, FRANCE

WORKSHOP EDITION N°2

3 TOPICS
- IN-PILE THERMAL MEASUREMENTS
- RADIATION EFFECTS IN ELECTRONICS FOR NUCLEAR AND PHYSICS INSTRUMENTATION
- MONTE CARLO METHODS APPLIED TO THE DESIGN OF NUCLEAR INSTRUMENTATION AND RADIATION DETECTION SYSTEMS

ANIMMA 2015, LISBON, PORTUGAL

WORKSHOP EDITION N°3

4 TOPICS
- Instrumentation, measurements and characterization for research reactors, Radiation
- Effects in Electronics for Nuclear and Physics Instrumentation
- Imaging in nuclear environment
- Reactor Dosimetry. Why and how does it improve the calibration of nuclear instrumentation

ANIMMA 2017, LIEGE, BELGIUM

WORKSHOP EDITION N°4

4 TOPICS
- The coupling of experiments and modelling to enhance experiments in research reactors
- Wide-band gap radiation detectors
- Optical fiber technology in nuclear field
- Innovative nuclear instrumentation and measurement in the imaging medical field

ANIMMA 2019, PORTOROZ, SLOVENIA

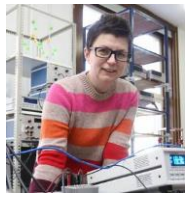
Session 2021

- ½-day workshop (instead of 1-day)
- 3 topics addressed

Workshop #1: Nuclear instrumentation and measurement for major research facilities in the fields of fusion and fission


Workshop conveners: **Christelle REYNARD-CARETTE** (Aix-Marseille University, IM2NP UMR7334, ISFIN institute, christelle.carette@univ-amu.fr) and **Gordon KOHSE** (MIT, NRL, USA, kohse@mit.edu)

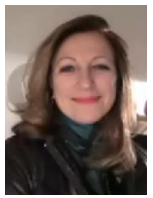
Workshop#2: Crystalline Materials for Radiation Detection




Workshop conveners: **Ivana CAPAN** (Rudjer Boskovic Institute, Croatia, capan@irb.hr) and **Takahiro MAKINO**, National Institutes for Quantum and Radiological Science and Technology (QST), Japan, makino.takahiro@qst.go.jp)

Workshop#3: Prospective technologies for the future of Nuclear medicine






Workshop conveners: **Patrick LE DÛ** (Retired from CEA Saclay and IEEE NPSS, patrickledu@me.com), **Christian BOHM** (University of Stockholm, Sweden, bohm@fysik.su.se), **Cinzia DA VIA** (University of Manchester, UK, cinzia.davia@manchester.ac.uk), **Masaharu NOMACHI** (Osaka University, Japan, nomachi@rcnp.osaka-u.ac.jp)

With the very precious help of

ANIMMA Local Organizing Committee Chair: Rastislav HODAK (Institute of Experimental and Applied Physics, CTU, Czech Republic, rastislav.hodak@utef.cvut.cz)

Session 2021

- ½-day workshop (instead of 1-day)
- 3 topics addressed
- 19 talks

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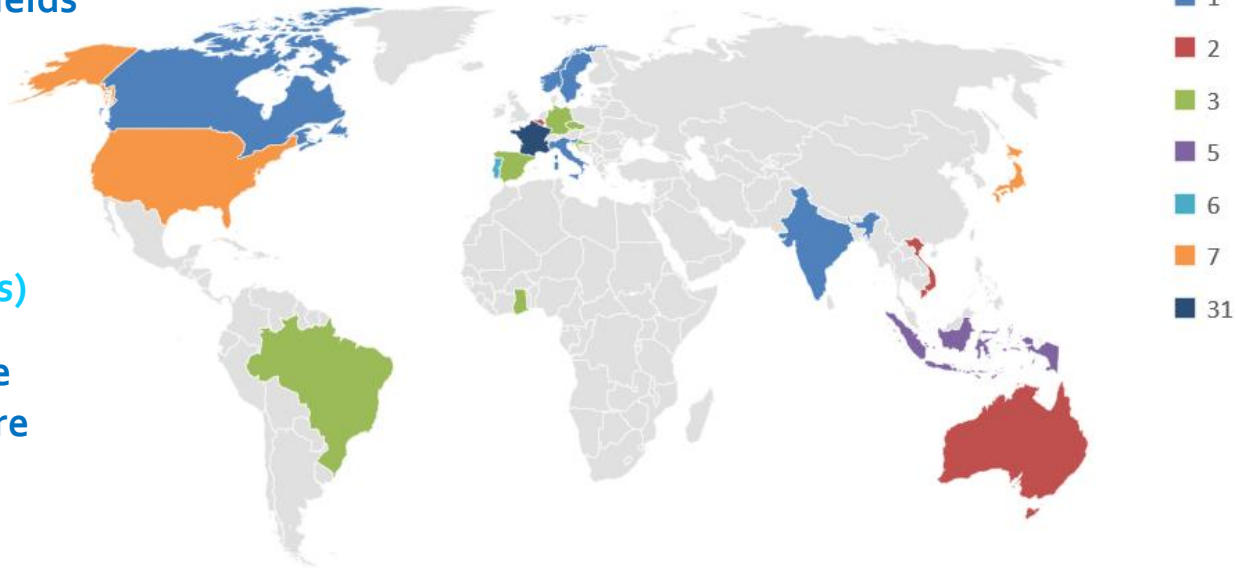
Session 2021

- ½-day workshop
- 3 Workshop topics
- 19 talks
- 90 participants
  - from 22 countries
  - including 19 speakers and 8 conveners

- Workshop #1: Nuclear instrumentation and measurement for major research facilities in the fields of fusion and fission (40 participants)
- Workshop#2: Crystalline Materials for Radiation Detection (16 participants)
- Workshop#3: Prospective technologies for the future of Nuclear medicine (39 participants)



CANADA
INDIA
ITALY
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SLOVENIA
SWEDEN
AUSTRALIA
BELGIUM
VIETNAM
BRAZIL
CROATIA
CZECH REPUBLIC
ENGLAND
GERMANY
GHANA
SPAIN
INDONESIA
PORTUGAL
SWIZTERLAND
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FRANCE

Thank you to the

Conveners Speakers Attendees Local support

Program

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○ Workshop #1: Nuclear instrumentation and measurement for major research facilities in the fields of fusion and fission

Title	First name and last name of the speaker and coauthors	Speaker affiliation and email address	
14:00 – 14:30	Introduction	**C. Reynard-Carette** **G. Kohse**	Aix-Marseille Université, IM2NP UMR7334, France christelle.carette@univ-amu.fr MIT, NRL, USA kohse@mit.edu
14:30 – 15:00	Recent improvements in instrumentation for French experimental nuclear reactors	**C. Destouches,** A. Lyoussi	CEA, DES/IRESNE/DER/SPESI, France christophe.destouches@cea.fr
15:00 – 15:30	Measurement of nuclear absorbed dose rate by calorimeter: from present work focused on a future irradiation campaign in the MIT's reactor to key challenges.	**A. Volte,** M. Carette, A. Lyoussi, G. Kohse, C. Reynard-Carette	Aix-Marseille Université, IM2NP UMR7334, France adrien.volte@univ-amu.fr
15:30 – 16:00	Sensor Technologies for the European TBM Program in ITER and DEMO Relevancy Aspects	**I. Ricapito**	F4E at ITER Organization, France Italo.Ricapito@f4e.europa.eu Italo.Ricapito@iter.org
16:00 – 16:15	Coffee Break		
16:15 – 16:45	Contributions to the development of nuclear instrumentation for the EU test blanket modules for ITER	**A. Klix,** P. Raj, M. Angelone, D. Szalkai, L. Ottaviani, B. Eugene Ghidersa, K. Tian	Karlsruhe Institute of Technology, Germany axel.klix@kit.edu
16:45 – 17:15	Neutron Detection using Silicon-Carbide- and Diamond-based Sensors: 3D Thermal Simulations and Instrumentation	**L. Ottaviani,** O. Palais, V. Valero, C. Reynard-Carette, A. Klix, C. Destouches, A. Lyoussi	Aix-Marseille Université, IM2NP UMR7334, France Laurent.ottaviani@univ-amu.fr
17:15 – 17:45	Instrumentation requirements and development for a new, large volume, irradiation position at the MITR research reactor, with applications for advanced reactor and fusion reactor development	**G. Kohse**	MIT, NRL, USA kohse@mit.edu

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○ Workshop#2: Crystalline Materials for Radiation Detection

Title	First name and last name of the speaker and coauthors	Speaker affiliation and email address	
14:00 – 14:30	Radiation defects in the silicon sublattice of 4H-SiC: electronic structure and annealing behavior	**José Coutinho**	University of Aveiro, Portugal jose.coutinho@ua.pt
14:30 – 15:00	Silicon-Carbide- and Diamond-based Neutron Sensors: Detection Stability under Irradiation	**Laurent Ottaviani**, O. Palais, V. Valero, C. Reynard-Carette, A. Klix, C. Destouches, A. Lyoussi	Aix-Marseille Univ, France laurent.ottaviani@univ-amu.fr
15:00 – 15:30	Conversion pathways of primary defects by annealing in proton-irradiated n-type 4H-SiC	**Robert Karsthof**, M. Etzelmüller Bathen, A. Galeckas, L. Vines	University of Oslo, Norway r.m.karsthof@smn.uio.no
15:30 – 16:00	Silicon carbide neutron detectors: sensitivity, energy selectivity and new converting materials – overview of research activities in the scope of the E-SiCure and E-SiCure2 projects	**Vladimir Radulović**, I. Capan, T. Makino, J. Coutinho, L. Snoj	Jozef Stefan Institute, Slovenia vladimir.radulovic@ijs.si
16:00 – 16:15	Coffee Break		
16:15 – 16:45	Proposal and Development of Novel Neutron Detector using Boron Gallium Nitride	**Takayuki Nakano**, T. Aoki	Shizuoka University, Japan nakano.takayuki@shizuoka.ac.jp
16:45 – 17:15	Crystalline Solid State Quantum Sensors for Space Applications – Magnetometers and other Sensing Applications leveraging Radiation Defects	**Hannes Kraus**	NASA JPL, USA hannes.kraus@jpl.nasa.gov
17:15 – 17:45	Closing remarks	**Takahiro Makino** **Ivana Capan**	QST, Japan makino.takahiro@qst.go.jp RBI, Croatia capan@irb.hr

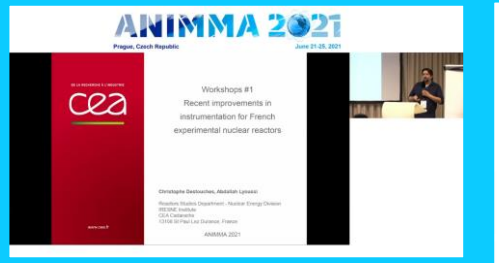
Program ○ Workshop#3: Forum on prospective technologies for the future PET imaging

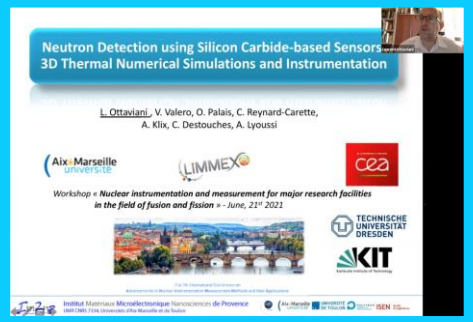
	Title	First name and last name of the speaker and coauthors	Speaker affiliation and email address
14:00 – 14:30	Part1: Introduction and presentation of the forum (10 min) Part2: Whole gamma imaging: a new concept of PET combined with Compton imaging	**Patrick Le Du** **Taiga Yamaya**	Retired from CEA Saclay and IEEE NPSS, France patrickledu@me.com National Institutes for Quantum and Radiological Science and Technology (QST), Japan yamaya.taiga@qst.go.jp
14:30 – 15:00	Picosecond timing resolution with scintillators	**Paul Lecoq**	Instituto de Instrumentación para Imagen Molecular (I3M), Valencia, Spain; Multiwave Metacrystal S.A., Geneva, Switzerland; CERN, Switzerland Paul.Lecoq@cern.ch
15:00 – 15:30	State-of-the-art Small Animal PET and Beyond	**Roger Lecomte**	Sherbrooke University Québec, Canada roger.lecomte@usherbrooke.ca
15:30 – 16:00	Compton and PET state f of the art	**Gabriela LLosa**	IFIC - Instituto de Física Corpuscular Parc Científic de la Universitat de València, Spain gabriela.llosa@ific.uv.es
16:00 – 16:15	Coffee Break		
16:15 – 16:45	Total-Body PET imaging: current status and a novel design approach with DOI and TOF capabilities	**Antonio Gonzalez**	IFIC University of Valencia, Spain agonzalez@i3m.upv.es
16:45 – 17:15	AI in nuclear imaging: opportunities, pitfalls and challenges	**Mitra SAFAVI-NAEINI**	ANSTO, Australia mitras@ansto.gov.au
17:15 – 17:45	Novel Time-of flight Positron Emission Tomography Systems Under Construction at Stanford	**Craig Levin**	Stanford University, USA cslevin@stanford.edu
17:45 – 18:15	Round Table		

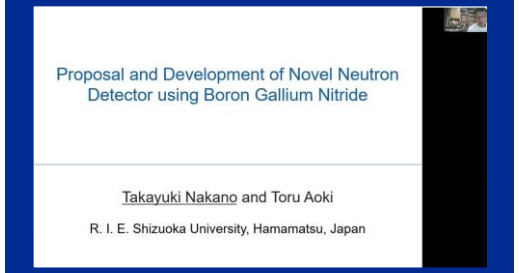
Workshop session, C. Reynard-Carette, christelle.carette@univ-amu.fr

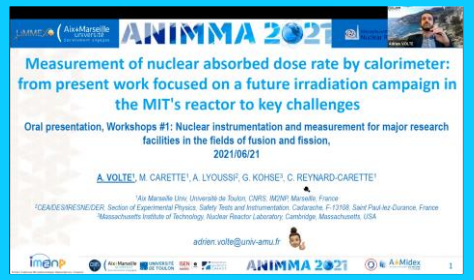
ANIMMA 2021

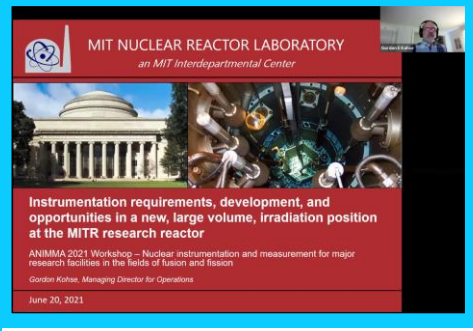
Prague, Czech Republic — June 21-25, 2021

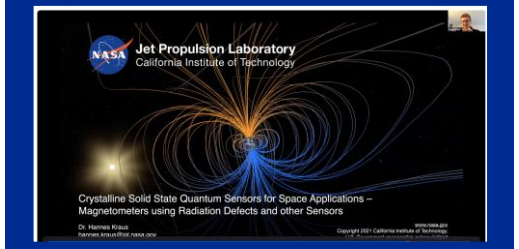


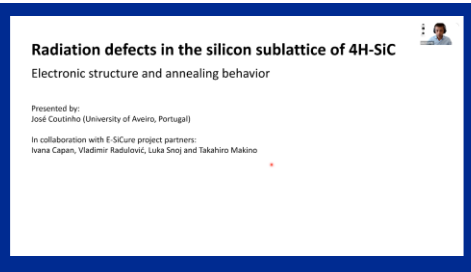


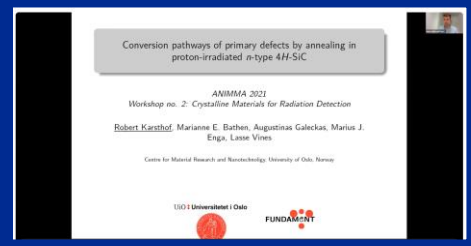


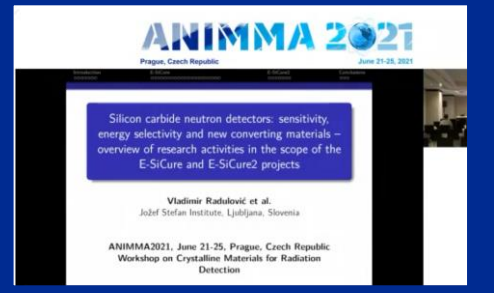


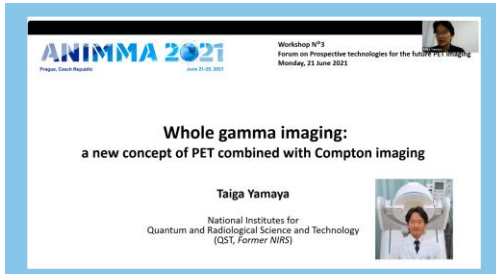


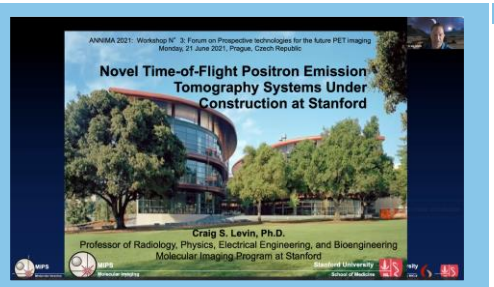


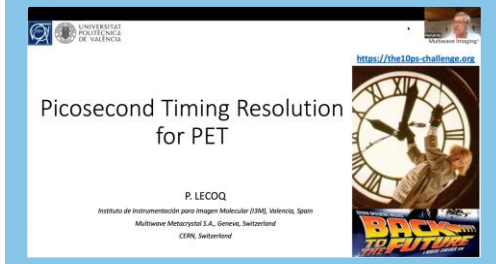


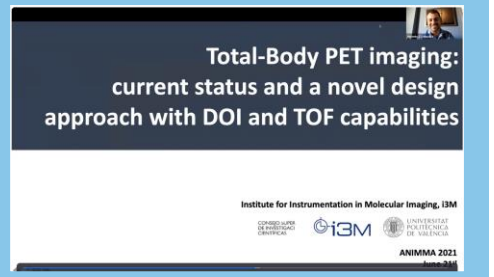












Workshop#1

Workshop#2

Workshop#3