

International Conference on Diagnostics For Fusion Reactors (ICFRD2020)

Monday, 6 September 2021 - Friday, 10 September 2021

Varenna, Villa Monastero

Programme

With the contribution of:



Monday 06 September 2021

- Welcome** **09:00-09:05**
Dr FARINA, Daniela (ISTP-CNR); GORINI, Giuseppe (MIB)
- Tutorial_0_T** **09:05-09:50**
European Fusion Roadmap
DONNÉ, Tony (EUROfusion)
- Tutorial_1** **09:50-10:35**
Diagnostics design for Fusion Reactors from ITER to DEMO
WALSH, Michael (ITER ORGANIZATION)
- Coffee Break** **10:35-11:00**
- Oral_1_ITER DIA** **11:00-11:30**
Design of the ITER Radial Neutron Camera (RNC)
ESPOSITO, Basilio (ENEA)
- Oral_2:** **11:30-12:00**
Steady state magnetic diagnostics for ITER and some new approaches to magnetic diagnostics offuture fusion reactors
DURAN, Ivan
- Oral_3_ITER_DIA** **12:00-12:30**
Development of the NPA based diagnostic complex in ITER
Dr SHEVELEV, Alexander (Ioffe Institute)
- Conference
Group Photo:** **12:30-12:40**
- Lunch Break** **12:40-15:00**
- Oral_11** **15:00-15:30**
ITER Beam Aided Diagnostics
LEVINTON, Fred (Nova Photonics, Inc.)
- Tutorial_3** **15:30-16:15**
A systems and control perspective on fusion plasmas
Prof. DE BAAR, Marco (NWO institute DIFFER)
- Coffee Break** **16:15-16:45**
- Short_Oral_6_REIS** **16:45-16:55**
Determination of Runaway Electron Distribution Parameters from Synchrotron RadiationMeasurements
MONTI, Chiara (ENEA)

- Short_Oral_9** **16:55-17:05**
Neutron diagnostic system at the Globus-M2 tokamak
Ms ILIASOVA, Margarita (Ioffe Institute)
- Short_Oral_10** **17:05-17:15**
Advances in the DTT poloidal interferometer/polarimeter design
FIORUCCI, D. (Consorzio RFX-CNR)
- Short_Oral_11** **17:15-17:25**
Preliminary design of a LIDAR Thomson scattering diagnostic for DTT
GIUDICOTTI, Leonardo (Padova University Department of Physics and Astronomy)
- Short_Oral_12** **17:25-17:35**
Bayesian inference applied to electron temperature data: computational performances and diagnostics integration.
FASSINA, Alessandro (ISTP-CNR)
- Short_Oral_13** **17:35-17:45**
Final design of the Fiber-Optic Current Sensor bundle in the ITER buildings
Dr DANISI, Alessandro (ITER Organization)
- Short_Oral_14** **17:45-17:55**
Guidelines for optimal design of Radio-Frequency in-vacuum coaxial transmission line for mirror cleaning service in ITER diagnostics
Dr DANISI, Alessandro (ITER Organization)
- Short_Oral_52** **17:55-18:05**
Development of a compact multivariable sensor probe for two-phase detection in high-temperature PbLi-Ar columns
Mr SARASWAT, ABHISHEK (INSTITUTE FOR PLASMA RESEARCH)
- Short_Oral_81** **18:05-18:15**
Present status of the conceptual study of the DEMO gamma-ray diagnostic
PERELLI CIPPO, Enrico (Istituto Nazionale di Fisica Nucleare)
- Welcome Party** **19:30-22:00**
at Villa Monastero

Tuesday 07 September 2021

- Tutorial_2** **09:00-09:45**
Nuclear measurements of fusion products in magnetic confinement reactors
NOCENTE, Massimo (Dipartimento di Fisica - Università di Milano-Bicocca)
- Tutorial_3** **09:45-10:30**
Microwave Diagnostics for Fusion Reactors
LUHMANN, JR., Neville (University of California, Davis)
- Coffee Break** **10:30-11:00**
- Oral_26** **11:00-11:30**
Multi-Channel Synchronized Data Acquisition Techniques for Plasma Diagnostics
MATUSZYNSKI, Kacper (Teledyne SP Devices)
- Oral_3.1** **11:30-12:00**
Fusion alpha-particles diagnostics: from JET to ITER and DEMO
KIPTILY, Vasily (United Kingdom Atomic Energy Authority)
- Oral_9** **12:00-12:30**
JET Diagnostic Capability in Preparation of Tokamak Nuclear Age
MURARI, Andrea (Consorzio RFX)
- Lunch Break** **12:30-14:45**
- CAEN Presentation** **14:45-15:00**
VENARUZZO, Massimo (CAEN SpA)
- Oral_10** **15:00-15:30**
Advances in ITER Thomson scattering diagnostic systems
BASSAN, Michele (ITRE srl)
- Oral_3.2** **15:30-16:00**
Fast-Ion Loss Detectors in Magnetically Confined Fusion Devices
GARCIA-MUNOZ, Manuel (University of Seville)
- Oral_12** **16:00-16:30**
ITER Toroidal Interferometer and Polarimeter (TIP) Development and Testing
VAN ZEELAND, Michael (General Atomics)
- Coffee Break** **16:30-17:00**
- Short_Oral_16** **17:00-17:10**
Study for a tangential dispersion interferometer/polarimeter for DTT
FILIPPI, Francesco (ENEA)
- Short_Oral_17** **17:10-17:20**
Characterization of Vacuum HV Micro discharges at the HVPTF Facility Through X-ray Bremsstrahlung Spectroscopy
KUSHORO, Matteo Hakeem (Università degli Studi Milano Bicocca)

- Short_Oral_18** **17:20-17:30**
First measurement of neutrons produced by deuterium fusion reactions in SPIDER
Dr MCCORMACK, Oisin (Università di Milano-Bicocca)
- Short_Oral_20** **17:30-17:40**
On preliminary considerations towards development of radiated power and SXR diagnostics for DEMO
CHERNYSHOVA, Maryna (Institute of Plasma Physics and Laser Microfusion)
- Short_Oral_21** **17:40-17:50**
Neutron spectrometer for studies of deuteron burn and triton burn-up states in D plasmas
Prof. KAELLNE, Jan (Department of Electrical Engineering, Uppsala University, Uppsala, Sweden)
- Short_Oral_65** **17:50-18:00**
Design considerations of the european DEMO's IR-interferometer/polarimeter based on TRAVIS simulations
BRUNNER, Kai Jakob (Max-Planck-Institute for Plasma Physics, Greifswald, Division E3)
- Short_Oral_68** **18:00-18:10**
Characterisation of an aluminium triple-GEM detector coupled with GEMINI chip for soft X-rays detection in Tokamaks
CANCELLI, Stephanie (Istituto Nazionale di Fisica Nucleare)
- Harp Concert** **21:30-23:00**
at Villa Monastero

Wednesday 08 September 2021

- Oral_28** **09:00-09:30**
ITER Diagnostics Progress in China
FANG, Tongzhen (Chinese domestic agency)
- Oral_29** **09:30-10:00**
Overview of ITER Diagnostics from JAPAN
IMAZAWA, Ryota (National Institutes for Quantum and Radiological Science and Technology)
- Oral_8** **10:00-10:30**
Diagnostics for DTT: opportunities of progress towards systems for fusion reactors
Dr VALISA, Marco (Consorzio RFX and ISTP-CNR)
- Coffee Break** **10:30-11:00**
- Oral_17** **11:00-11:30**
Overview and Recent Progress of KSTAR Diagnostics
LEE, Sang Gon (Korea Institute of Fusion Energy)
- Oral_18** **11:30-12:00**
Compact diagnostic systems for X-rays, gammas, and neutrons: a “swiss-knife” detectors portfolioranging between magnetic confinement fusion, thermal and fast neutrons detection, and laser produced plasmas experiments
Dr CORDELLA, Francesco (ENEA Frascati)
- Oral_21** **12:00-12:30**
Feedback control using divertor multi-spectral imaging diagnostics
KOENDERS, J.T.W. (DIFFER - Dutch Institute for Fundamental Energy Research, Eindhoven, the Netherlands)
- Lunch Break** **12:30-15:00**
- Oral_19** **15:00-15:30**
Diagnostic integration concepts for DEMO – The reflectometry example
MALAQUIAS, Artur (Instituto Superior Técnico)
- Oral_20** **15:30-16:00**
Overview on the development of the plasma diagnostic and control system for the European DEMO reactor concept
Prof. BIEL, Wolfgang (Institute of Energy- and Climate Research, Forschungszentrum Jülich GmbH, Jülich, Germany)
- Oral_16** **16:00-16:30**
Diagnostic Needs for Fusion DEMO and Power Plants
A Panel Discussion
BOIVIN, Rejean (General Atomics)
- Coffee Break** **16:30-17:00**

- Short_Oral_31** **17:00-17:10**
A new hard X-ray spectrometer for runaway electron measurements in tokamaks
DAL MOLIN, Andrea
- Short_Oral_33** **17:10-17:20**
Verification of Ni ion dielectronic satellite structure in JET plasma diagnostic for low and high plasma rotation - Villa Monastero
KOZIOŁ, Karol (National Centre for Nuclear Research); RZADKIEWICZ, Jacek (National Centre for Nuclear Research)
- Short_Oral_36** **17:20-17:30**
Runaway electron velocity-space observation regions of bremsstrahlung hard X-rayspectroscopy
PANONTIN, Enrico
- Short_Oral_37** **17:30-17:40**
Inverse scattering based plasma density profilometry retrieval in front of ICRF Antennas
Dr TORRISI, Giuseppe (INFN-LNS)
- Short_Oral_47** **17:40-17:50**
Application of FDTD algorithm to the analysis of polarization state evolution in tokamak plasma
BIEG, Bohdan (Maritime University of Szczecin)
- Short_Oral_48** **17:50-18:00**
CVD diamond detectors for VUV and SX-ray fusion plasma diagnostics
CESARONI, Silvia
- Social Dinner** **20:00-22:00**
at the "Gourmet" Restaurant in Varenna (Restaurant of the Hotel Royal Victoria)

Thursday 09 September 2021

- Tutorial_5** **09:00-09:45**
Introduction to Stellarator Diagnostics
WOLF, Robert (MPI for Plasma Physics)
- Oral_14.1** **09:45-10:15**
Introduction to LHD diagnostics
TOKUZAWA, Tokihiko (National Institute for Fusion Science)
- Short_Tutorial** **10:15-10:45)**
Introduction to DIAGNOSTICS AND CONTROL OF FUSION-FISSION HYBRID TOKAMAK BASED REACTORS
Dr ORSITTO, francesco paolo (ENEA)
- Coffee Break** **10:45-11:00**
- Oral_13** **11:00-11:30**
Diagnostics on the stellarator TJ-II
MCCARTHY, Kieran Joseph (Ciemat)
- Oral_14.2** **11:30-12:00**
Energetic-particle physics studies with an integrated set of neutron and energetic-particle diagnostics in LHD deuterium discharges
ISOBE, Mitsutaka (National Institute for Fusion Science)
- Oral_15** **12:00-12:30**
Development of Nuclear Detectors for Tokamak Harsh Environments
Dr ANGELONE, Maurizio (ENEA)
- Lunch Break** **12:30-15:00**
- Oral_22** **15:00-15:30**
Soft-X rays and neutron diagnostics in magnetic confinement and inertial fusion: the SIDE-ON GEMdetector and DIAMONDPIX
CLAPS, Gerardo (LNF)
- Oral_23** **15:30-16:00**
The Progress of ITER Divertor Langmuir Probe design
NIE, Lin (Southwestern Institute of Physics)
- Oral_24** **16:00-16:30**
Progress in ITER ECE Diagnostic Design and Integration
LIU, Yong (ITER Organization)
- Coffee Break - Villa Monastero (16:30-17:00)**
- Short_Oral_23** **17:00-17:10**
Performance of neutral pressure gauges using LaB6-emitters in deuterium plasmas
HAAK, Victoria

- Short_Oral_24** **17:10-17:20**
Assessment of long-term stability of the plasma current measurement at JET using fibre optics current sensor
Dr GUSAROV, Andrei (SCK CEN)
- Short_Oral_25** **17:20-17:30**
Conceptual design of a Cherenkov based gamma-ray diagnostic for measurement of 17 MeV gamma rays from T(D, γ)⁵He in magnetic confinement fusion plasmas
PUTIGNANO, Oscar (Istituto Nazionale di Fisica Nucleare)
- Short_Oral_28** **17:30-17:50**
Characterization of Cs-free negative ion production in the ion source SPIDER by Cavity Ring-Down Spectroscopy
BARBISAN, Marco (Consorzio RFX)
- Short_Oral_29** **17:50-18:00**
Preliminary parametric analysis of the first neutrons measured with a scintillator array at SPIDER
Dr MARIO, Isabella (Istituto Nazionale di Fisica Nucleare)
- Short_Oral_30** **18:00-18:10**
An ultrahigh-bandwidth Phase Contrast Imaging system to detect electron scale turbulence and gigahertz radio-frequency waves
Dr MARINONI, Alessandro (Massachusetts Institute of Technology)
- Short_Oral_75** **18:10-18:20**
A Thermal Helium Beam Diagnostic for the ASDEX Upgrade Divertor
CAVEDON, Marco (Università degli Studi di Milano-Bicocca, Dip. di Fisica 'G. Occhialini', Milan, Italy)
- Short_Oral_32** **18:20-18:30**
Status of the ITER CXRS diagnostic system modeling
SEROV, Stanislav (Institution "Project Center ITER", RF)

Friday 10 September 2021

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| Tutorial_9 | 09:00-09:45 Introduction to Integrated Data Analysis and Validation <i>FISCHER, Rainer (Max-Planck-Institute for Plasma Physics, Garching, Germany)</i> |
| Tutorial_10 | 09:45-10:30 First principles modeling of fast electron physics - Villa Monastero <i>PEYSSON, Yves (CEA)</i> |
| Coffee Break | 10:30-11:00 |
| Oral_25 | 11:00-11:30 Plasma equilibrium reconstruction in a Tokamak <i>Prof. BLUM, Jacques (Laboratoire LJAD, Université Côte d'Azur)</i> |
| Oral_73 | 11:30-12:00 Nuclear diagnostics for assessing the performance of the DT burning plasma experiment SPARC <i>TARDOCCHI, Marco (stituto per la Scienza e Tecnologia dei Plasmi, Consiglio Nazionale delle Ricerche, Milan, Italy)</i> |
| Oral_28 | 12:00-12:30 Overview of the T-15MD tokamak diagnostics <i>SUSHKOV, Alexey (National Research Center "Kurchatov Institute")</i> |
| Summary | 12:30-13:00 Highlights of main result <i>ORSITTO, francesco paolo (CREATE Consortium and ENEA Department FSN Frascati Italy)</i> |