

Welcome

to the BSBF B3 Parallel Session on

**Basic material technologies and
advanced manufacturing
techniques**

BSBF 2022

B3 parallel session



Basic material technologies and advanced manufacturing techniques

October 5th 2022/ 17:00-18:30
Albéniz room (floor -2)

M. Morandin - CERN ILO for Italy (INFN-PD)

The content

- **materials technologies** and **advanced manufacturing techniques** play an **essential role** in the development of new scientific infrastructures, like accelerators, observatories on earth and in space, fusion tokamak, etc., but that are also crucial in various industrial sectors
- therefore it's a field where **synergies between academia and industry** can be very fruitful and we have already several examples of well established collaboration ongoing in this field
- in this session we will learn how four Big Science Organizations (**CERN, ESA, F4E, XFEL**) are addressing the challenges they are facing in these sectors and what are the opportunities for partnerships with industry in R&D



B3 Agenda

- 17.00 - 17.05 **Welcome** - M.M. (INFN)
- 17:05 - 17.25 **Introductory talks**
 - **Material technologies for the Big Science** - Ignacio Avilés (CERN)
 - **Advanced manufacturing techniques for the Big Science** - Thomas Rohr (ESA)
- 17:25 - 18:25 **Presentations of Industrial opportunities at Big Science Organizations**
 - **Opportunities at ESA** - Thomas Rohr (ESA)
 - **Towards fast prototyping and industrial mass production of targets for high repetition rate free-electron lasers** - Joachim Schulz (XFEL)
 - **Qualification of Manufacturing Procurement for F4E and ITER** - Stefan Wikman (F4E)
 - **Industrial opportunities at CERN: focus on materials** - Ignacio Avilés (CERN)
- 18.25 - 18.30 **Q&A - Closeout** - M.M. (INFN)

B3 speakers: Ignacio Avilés



Ignacio Avilés

CERN

- graduated in Industrial Engineering from the University Carlos III de Madrid in 2011.
- specialized in Material Science, master thesis at CERN in electron beam welding of ultra-high purity Nb and Ti.
- fellowship for material studies for HIE – ISOLDE SC RF cavities and superconducting proton Linac.
- In 2014, PhD in the framework of the ITER – CERN collaboration, with special focus on fracture toughness at cryogenic temperature of austenitic stainless steel welds
- Since 2018, he co-manages the ITER – CERN collaboration on material studies for the ITER magnet system
- responsible of the mechanical testing activity of the Materials and Metrology Section at CERN (EN-MME-MM)

B3 speakers: Thomas Rohr



Thomas Rohr

ESA

- studied chemistry at the Vienna University of Technology
- received his PhD in polymer chemistry in 2000
- after a PostDoc position at UC Berkeley he joined the European Space Agency (ESA) and started working at ESTEC in the Netherlands.
- expert of materials and processes for space applications
- has worked on testing and assessment of durability of materials as well as on obsolescence management of materials and processes
- from 2018: Head of the Materials and Processes Section
- responsible for implementation of technology development activities such as advanced materials and manufacturing technologies.

B3 speakers: Joachim Schulz



Joachim Schulz
European XFEL

- graduated at Hamburg University in atomic spectroscopy in 2001
- from 2002 to 2007 Post-doc and later senior scientist at the MAXlab synchrotron laboratory in Lund (Sweden)
- from 2007 to 2011, senior scientist at the Centre for Free-Electron Laser Science (CFEL) in Hamburg.
- in 2011 he started building up the Sample Environment and Characterization group of the European XFEL
- the group is responsible for operating the user laboratories and developing state-of-the-art sample delivery methods.

B3 speakers: Stefan Wikman



Stefan Wikman

F4E

- material expert with background in development of alloys and materials for the nuclear sector
- PhD in metallurgy and joining methods
- long experience in managing international technical, manufacturing and R&D projects
- joined F4E in 2017
- currently group leader of Materials & Manufacturing Technologies & Processes at F4E,
 - managing engineers working on manufacturing of different ITER machine systems.

Interactions

- I want to express our **gratitude** to the speakers for accepting to participate and to prepare their presentations
- it would be great if they can manage to save **a couple of minutes** of the allocated time for a couple of possible questions from the audience
- the speakers are available to **take further questions a to have discussions** in the 1-to-1 meetings