

10th MicroTCA Workshop

7 -9 December 2021
DESY, Hamburg



Introduction: 10th MicroTCA Workshop 2021

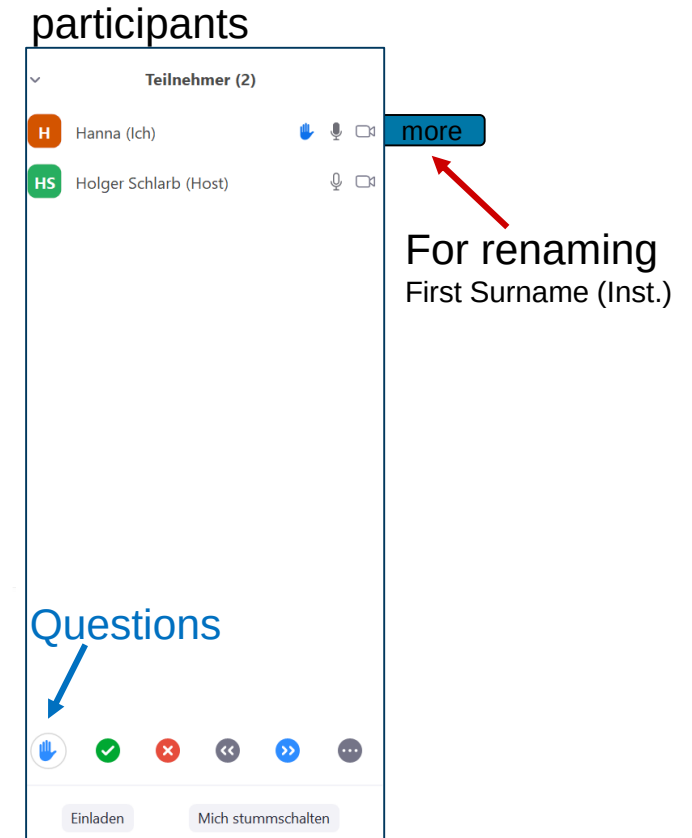
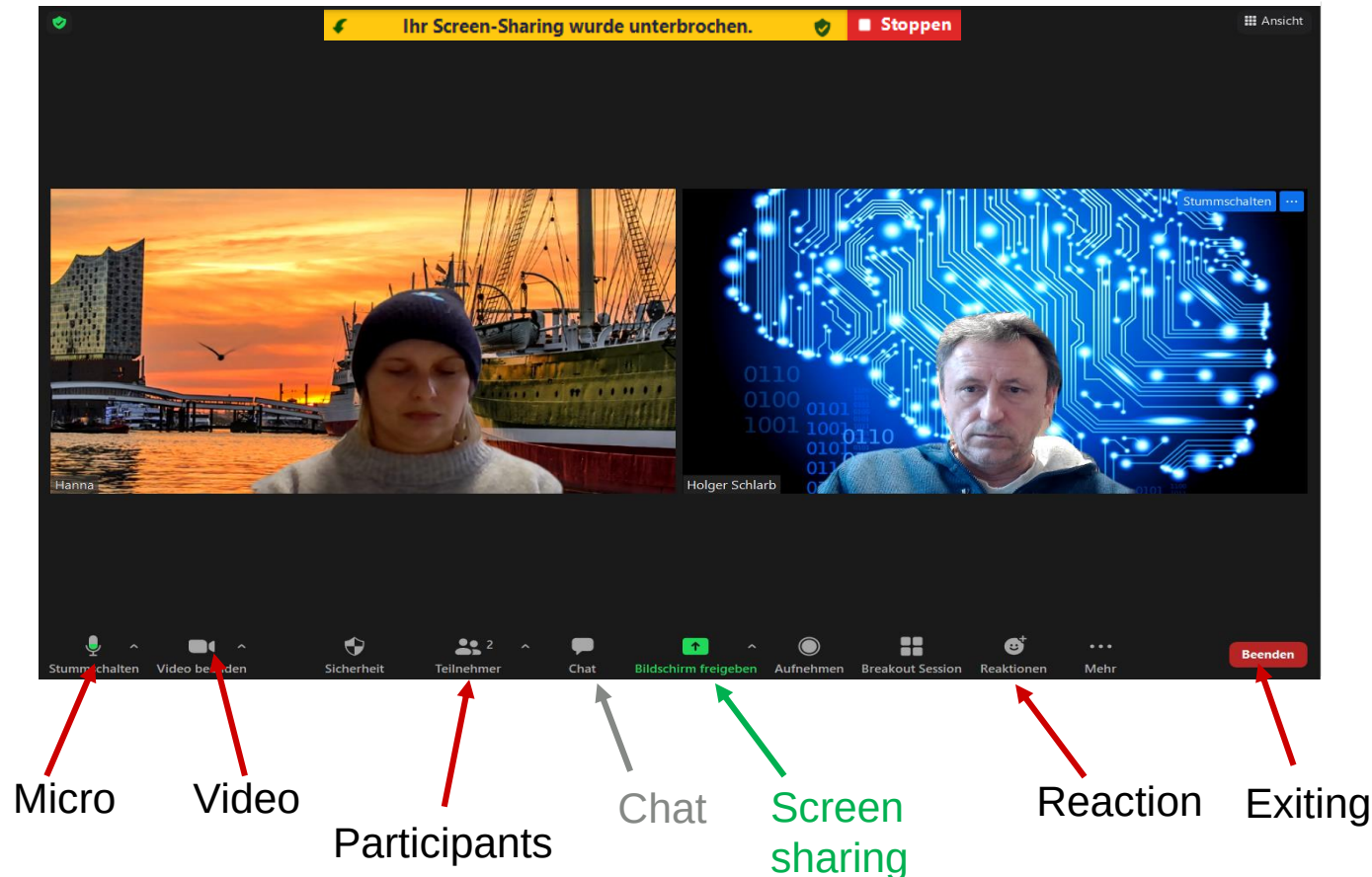
for Industry & Research

Holger Schlarb, Accelerator Beam Controls (MSK)/DESY
DESY, 07.12.2021

Info's ZOOM Meeting

Participants: please keep micro muted / video off /
Speakers: please video on/ **green button** for slide sharing
Questions: use chat / **raise hand** / switch video & micro on

Presentation &
Video's (if permit)
will be uploaded asap.



Workshop program Tu / We / Th

Indico page: <https://indico.desy.de/event/31387/timetable/#20211207.detailed>

Noon: two tutorial tracks ~ 6 talks

10th Virtual MicroTCA Workshop for Industry and Research

7-9 December 2021
Virtual Workshop via Zoom
Europe/Berlin timezone

Overview
Timetable
Registration
Payment
Call for Abstracts
Book of Abstracts
Contribution List
Participants list
Support
✉ ws-mtca@desy.de
☎ +49 (0)40 8998 4557

Timetable

<	Tue 07/12	Wed 08/12	Thu 09/12	All days	>
	Print	PDF	Full screen	Detailed view	Filter
	Basic and advanced Tutorial	Session 1	Session 2	Legend	
12:00	MicroTCA basics <i>Ralf Waldt</i> Virtual Workshop via Zoom 12:00 - 12:35	Do's and Don'ts of MicroTCA System Design <i>Cagil Guemues</i> Virtual Workshop via Zoom 12:00 - 13:10			
13:00	MicroTCA management <i>Heiko Korte</i> Virtual Workshop via Zoom 12:35 - 13:10				
	Break Virtual Workshop via Zoom 13:10 - 13:20				
14:00	Developing for SoC-based AMCs <i>Jan Marjanovic</i> Virtual Workshop via Zoom 13:20 - 13:55	ChimeraTK <i>Martin Killenberg</i> Virtual Workshop via Zoom 13:20 - 14:30			
	PCIe and Open Source Linux Driver <i>Ludwig Petrosyan</i> Virtual Workshop via Zoom 13:55 - 14:30				
	Break Breakfast / Lunch / Dinner Virtual Workshop via Zoom 14:30 - 15:00				
15:00	Welcome to DESY <i>Wim Leemans</i> Virtual Workshop via Zoom 15:00 - 15:20				

25% new participants

2 tutorial tracks
12:00-14:30

Workshop program Tu / We/ Th

10 session with 38 talks: 13min + 2min Q&A (some 17+3)

12:00	MicroTCA basics	Ralf Woidt	Do's and Don'ts of MicroTCA System Design	Cagli Guemmes	12:00 - 12:35	12:00	Keynote: Applications of Quantum Computing	Karl Jansen	12:00 - 12:30	12:00	Exhibition: Struck	12:00 - 12:20
	Virtual Workshop via Zoom						Virtual Workshop via Zoom				Virtual Workshop via Zoom	
	MicroTCA management	Holko Körte					Summary of MTCA workshop for accelerator and physics in Japan 2021	Yasuhiko Tomita	12:30 - 12:45		Virtual Workshop via Zoom	12:20 - 12:35
13:00	Virtual Workshop via Zoom	12:35 - 13:10	Virtual Workshop via Zoom	12:00 - 13:10			Summary of 2nd MTCA/IATCA workshop and status of MicroTCA.4 in China	Xinrong Ma	12:45 - 13:00		Latest Hardware Developments in MicroTCA.4	Mr Michael Penner
	Break						MicroTCA.4 based controller for CMOS detectors	Mathias Riechertshagen	13:00 - 13:15		Improvements in ChimeraTK DeviceAccess	Martin Killenberg
	Virtual Workshop via Zoom				13:10 - 13:20		Conduction Cooled MTCA.4 Compliant Astronomical Detector Controller for Visible and Infra-Red CMOS Image Sensor...	Adriano Vaccarella et al.			Overview of MMC Stamp Software Development Kit	Patrick Huesmann
	Developing for SoC-based AMCs	Jan Marjanovic	ChimeraTK	Martin Killenberg			Break				Break	
	Virtual Workshop via Zoom	13:20 - 13:55					Virtual Workshop via Zoom	13:30 - 13:40			Virtual Workshop via Zoom	13:20 - 13:30
14:00	PCIe and Open Source Linux Driver	Ludwig Petrosyan					Exhibition: CAENeels		13:40 - 14:00		Exhibition: TechLab	
	Virtual Workshop via Zoom	13:55 - 14:30	Virtual Workshop via Zoom	13:20 - 14:30			Virtual Workshop via Zoom				Virtual Workshop via Zoom	13:50 - 13:55
	Break Breakfast / Lunch / Dinner				14:30 - 15:00		MicroTCA for the new 200MHz Cavity controller of the CERN SPS	Gregoire Agnietti	14:00 - 14:15		Outlook of MicroTCA usage at European XFEL	Bruno Fernandes
	Virtual Workshop via Zoom						MicroTCA Hardware Upgrade for the 200 MHz Cavity Controller in the CERN Proton Synchrotron	Matteo Pagan	14:15 - 14:30		Overview of DMCS Projects and MicroTCA.4 Developments	Dariusz Makowski
15:00	Welcome to DESY	Wim Leemans			15:00 - 15:20		Development of a MTCA.4 LINAC LLRF system for the MedAustron LINAC upgrade	Mr B. Barčević	14:30 - 14:45		Universal Software Framework for Image Acquisition based on GenICam Standard	Petar Percek
	Introduction	Holger Schlarb					LLRF control status at Helmholtz Zentrum Berlin	Dr Pablo Echevarria	14:45 - 15:00		Advantages of MTCA for photon science experiments	Martin Tolstedt
	Virtual Workshop via Zoom	15:20 - 15:30					Break Breakfast / Lunch / Dinner				Break Breakfast / Lunch / Dinner	
	Status of the MTCA-based Accelerator Control Systems at DESY	Tom Wilson			15:30 - 15:45		Virtual Workshop via Zoom	15:00 - 15:40			Virtual Workshop via Zoom	14:50 - 15:30
	Virtual Workshop via Zoom						Exhibition: eViont		15:40 - 16:00		Exhibition: Teledyne SP Devices	
	MicroTCA for the new Beam Control of the CERN SPS	Arthur Spierer			15:45 - 16:00		RF Performance of Zone 3 class RFLS on a Reference RTM Design	Johannes Zöll	16:00 - 16:15		Data Acquisition using MicroTCA in the Mu2e Experiment	Matthew Jones
16:00	Update on LISA Phasemeter based on MicroTCA as ground-support equipment	Prof. Oliver Gorbarding			16:00 - 16:15		Current Status and Future Plans for the DeRTM LO and CLK Generation Module	Uros Mavric et al.	16:15 - 16:30		MicroTCA@OSI	René Godfroy
	Virtual Workshop via Zoom						Modular Machine Timing System for the ELBE accelerator based on MRF MicroTCA.4 series 300 hardware.	Michael Kuntzsch			Applications of Digital Signal Processing for Energy Dispersive X-Rays Detectors	Samuel Audebert
	SNS Beam Power Limiting System: The Challenges of Applying MTCA to Personnel Protective Systems	Charles Roberts			16:15 - 16:30		Break		16:45 - 16:55		MTCA-based Camera Systems at W7-X	Axel Weber
	Virtual Workshop via Zoom						Virtual Workshop via Zoom				Break	
	Exhibition: powerBridge				16:30 - 16:40		Exhibition: N.A.T.		16:55 - 17:15		Virtual Workshop via Zoom	16:50 - 17:00
	Virtual Workshop via Zoom						Use of MTCA.4 and White Rabbit in the CERN SPS Low Level RF system	Tomasz Wlosowski	17:15 - 17:30		RTM-LAMP: a 12-channel Current Source Power Supply in MicroTCA.4 Form Factor	Augusto Gacharo
17:00	Development of the MicroTCA standard: preparing for the Next Generation	Kay Rehlich			17:00 - 17:15		X3Timer - Design and development of a new timing AMC hardware for PETRA IV	Hendrik Lippek	17:30 - 17:45		The RF BPM Electronics Concept and Developments for the PETRA IV project at DESY	Mr P. Leban
	Virtual Workshop via Zoom						Upgrades to the Spallation Neutron Source Timing System Utilizing MicroTCA	Thomas Justice			A Bunch Selective BPM System built from MTCA components	Dr Günther Rehm
	4th Generation NAT-MCH	Holko Körte			17:15 - 17:30		Discussion	Holger Schlarb	18:00 - 19:00		Future Fast Orbit Feedback for SOLEIL	Romain Brauquart
	Virtual Workshop via Zoom						Virtual Workshop via Zoom				Close out	
	PCIe Gen4/5 and 100G-Ethernet on mTCA platform	Sergej Drol			17:30 - 17:45						Virtual Workshop via Zoom	18:00 - 18:10
	Virtual Workshop via Zoom											
	IPM Support for FMC modules in MTCA.4 Systems - Current Status	Patryk Nowak vel Nowakowski			17:45 - 18:00							
18:00	Virtual Workshop via Zoom											
	Discussion	Kay Rehlich										
	Virtual Workshop via Zoom				18:00 - 19:00							
19:00												

Workshop program Tu / We/ Th

7 exhibiter presentations:

20 min



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13:00	Break			
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	Introduction	Holger Schlarb		
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	Break			
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19:00				

12:00	Keynote: Applications of Quantum Computing	Karl Jansen
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	Summary of MTCA workshop for accelerator and physics in Japan 2021	Fumihiko Tamura
	Virtual Workshop via Zoom	12:30 - 12:45
	Summary of 2nd MTCA/ATCA workshop and status of MicroTCA.4 in China	Xinrong Ma
	Virtual Workshop via Zoom	12:45 - 13:00
13:00	MicroTCA.4 based controller for CMOS detectors	Mathias Richterhagen
	Virtual Workshop via Zoom	13:00 - 13:15
	Conduction Cooled MTCA.4 Compliant Astronomical Detector Controller for Visible and Infra-Red CMOS Image Sensor...	Antonio Vaccarella et al.
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	MicroTCA Hardware Upgrade for the 200 MHz Cavity Controller in the CERN Proton Synchrotron	Matteo Pagan
	Virtual Workshop via Zoom	14:15 - 14:30
	Development of a MTCA.4 LINAC LLRF system for the MedAustron LINAC upgrade	Mr B. Barčević
	Virtual Workshop via Zoom	14:30 - 14:45
	LLRF control status at Helmholtz Zentrum Berlin	Dr Pablo Echevarria
	Virtual Workshop via Zoom	14:45 - 15:00
15:00	Break Breakfast / Lunch / Dinner	
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	Exhibition: nVent	
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16:00	Current Status and Future Plans for the DeRTM LO and CLK Generation Module	Uros Mavric et al.
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	Modular Machine Timing System for the ELBE accelerator based on MRF MicroTCA.4 series 300 hardware.	Michael Klundt
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	Break	
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12:00	Exhibition: Struck	
	Virtual Workshop via Zoom	12:00 - 12:20
	Virtual Workshop via Zoom	12:20 - 12:35
	Latest Hardware Developments in MicroTCA.4	Mr Michael Penner
	Virtual Workshop via Zoom	12:35 - 12:50
13:00	Improvements in ChimeraTK DeviceAccess	Martin Killenberg
	Virtual Workshop via Zoom	12:50 - 13:05
	Overview of MMC Stamp Software Development Kit	Patrick Huesmann
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15:00	Break Breakfast / Lunch / Dinner	
	Virtual Workshop via Zoom	14:50 - 15:00
	Exhibition: Teledyne SP Devices	
	Virtual Workshop via Zoom	15:00 - 15:30
16:00	Data Acquisition using MicroTCA in the BLUZE Experiment	Matthias Dorst
	Virtual Workshop via Zoom	15:30 - 15:45
	MicroTCA@OSI	René Godfroy
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	Applications of Digital Signal Processing for Energy Dispersive X-Rays Detectors	Samuel Audebert
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	MTCA-based Camera Systems at W7-X	Axel Winter
	Virtual Workshop via Zoom	16:15 - 16:30
	Break	
	Virtual Workshop via Zoom	16:30 - 16:50
17:00	RTM-LAMP: a 12-channel Current Source Power Supply in MicroTCA.4 Form Factor	Augusto Giachero
	Virtual Workshop via Zoom	16:50 - 17:00
	The RF BPM Electronics Concept and Developments for the PETRA IV project at DESY	Mr P. Leban
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	A Bunch Selective BPM System built from MTCA components	Dr Günther Rehm
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	Future Fast Orbit Feedback for SOLEIL	Romain Brauquart
	Virtual Workshop via Zoom	17:30 - 17:45
18:00	Close out	
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➔ In plenary session !!!!

Workshop program Tu / We/ Th

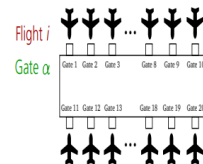
Keynote speech on Quantum Computing:

- Tu noon 12:00
- Dr. Karl Jansen (DESY)
- World leading expert in algorithm for small Quantum Systems



$$|\Psi\rangle = \frac{1}{2}|0,0\rangle + \frac{1}{2}|1,0\rangle + \frac{1}{2}|0,1\rangle + \frac{1}{2}|1,1\rangle$$

Flight gate assignment



Center for Quantum Technology Applications CQTA

Zeuthen

Quantum Simulations
Algorithms & Methods
Benchmarking

Access to Quantum
Computers

Quantum Sensing

Transfer
Training and Education
Outreach



Hamburg

Photon Science
for Quantum Materials and
for Quantum Devices

Quantum Machine Learning
Quantum Simulations

Quantum Sensing



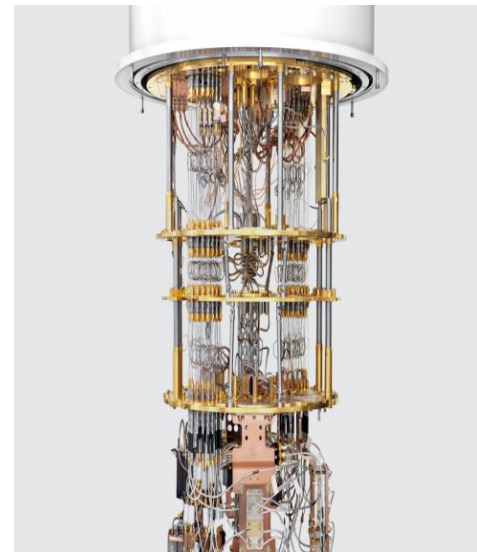
30 min

We

Th

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	Virtual Workshop via Zoom	12:00 - 12:30
	Summary of MTCA workshop for accelerator and physics in Japan 2021	Junichiro Tanaka
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	Break	
	Virtual Workshop via Zoom	13:30 - 13:40
	Exhibition: CAENels	
	Virtual Workshop via Zoom	13:40 - 14:00
14:00	MicroTCA for the new 200MHz Cavity-controller of the CERN SPS	Gregoire Hagmann
	Virtual Workshop via Zoom	14:00 - 14:15
	MicroTCA Hardware Upgrade for the 200 MHz Cavity Controller in the CERN Proton Synchrotron	Matteo Pagan
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	Virtual Workshop via Zoom	15:40 - 16:00
16:00	RF Performance of Zone 3 class RF1.0 on a Reference RTM Design	Johannes Zink
	Virtual Workshop via Zoom	16:00 - 16:15
	Current Status and Future Plans for the DeRTM LO and CLK Generation Module	Uros Mavric et al.
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	Virtual Workshop via Zoom	18:00 - 19:00

12:00	Exhibition: Struck	
	Virtual Workshop via Zoom	12:00 - 12:20
	MicroTCA.4-based Beam Position Monitor Electronics Design for Storage Ring of HALF	Yu Liang
	Virtual Workshop via Zoom	12:20 - 12:35
	Latest Hardware Developments in MicroTCA.4	Mr Michael Penner
	Virtual Workshop via Zoom	12:35 - 12:50
13:00	Improvements in ChimeraTK DeviceAccess	Martin Kilenberg
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	Future Fast Orbit Feedback for SOLEIL	Romain Brouquart
	Virtual Workshop via Zoom	17:45 - 18:00
18:00	Close out	
	Virtual Workshop via Zoom	18:00 - 18:10



Workshop program Tu / We/ Th

Special Q&A sessions in evening

Evening Tu / We 18:00 – 19:00 ...

On-demand: Th

➔ Speakers are ask to participation

➔ Allows for dedicated question to talks

➔ Room for newcomer to ask ...
& for expert discussion

Tu

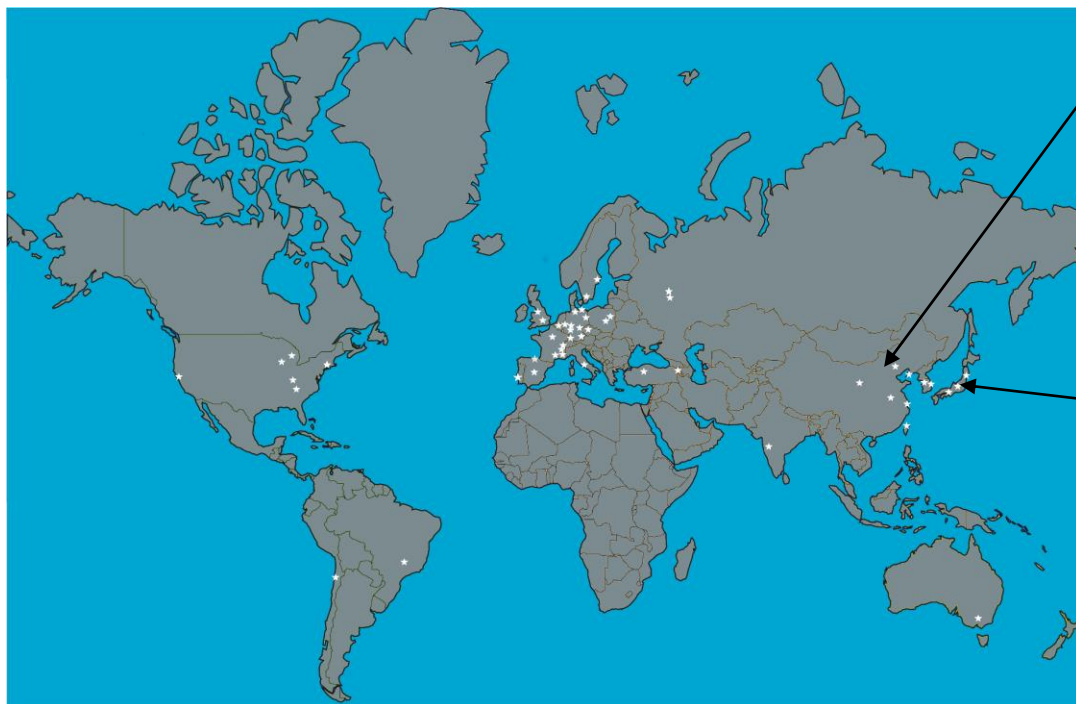
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23:00	Break Breakfast / Lunch / Dinner Virtual Workshop via Zoom 15:15 - 15:40
24:00	Exhibition: nVent Virtual Workshop via Zoom 15:40 - 16:00
25:00	RF Performance of Zone 3 class RF1.0 on a Reference RTM Design Johannes Zink Virtual Workshop via Zoom 16:00 - 16:15
26:00	Current Status and Future Plans for the DeRTM LO and CLK Generation Module Uros Mavric et al. Virtual Workshop via Zoom 16:15 - 16:30
27:00	Modular Machine Timing System for the ELBE accelerator based on MRF MicroTCA.4 series 300 hardware. Michael Kuntzsch Virtual Workshop via Zoom 16:30 - 16:45
28:00	Break Virtual Workshop via Zoom 16:45 - 16:55
29:00	Exhibition: N.A.T. Virtual Workshop via Zoom 16:55 - 17:15
30:00	Use of MTCA.4 and White Rabbit in the CERN SPS Low Level RF system Tomasz Wlozowski Virtual Workshop via Zoom 17:15 - 17:30
31:00	X3Timer - Design and development of a new timing AMC hardware for PETRA IV Hendrik Lippke Virtual Workshop via Zoom 17:30 - 17:45
32:00	Upgrades to the Spallation Neutron Source Timing System Utilizing MicroTCA Thomas Justice Virtual Workshop via Zoom 17:45 - 18:00
33:00	Discussion Holger Schlarb Virtual Workshop via Zoom 18:00 - 19:00

Regional MTCA workshop Q3/2021

Events: 2 day MTCA-WS @ China
3 day MTCA-WS @ Japan



@Gornott (MicroTCA TechLab)

The 2nd MTCA/ATCA Workshop for Research and Industry

chaired by Jingyi Li (IHEP)

from Tuesday, August 24, 2021 at 10:00 to Wednesday, August 25, 2021 at 21:00 (Asia/Shanghai)
at On-line

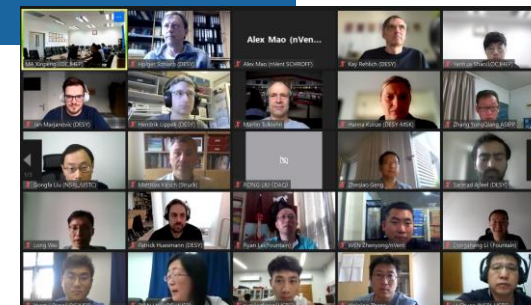
19B Yuquan Road, Shijingshan District Beijing, 100049

Organizer: Xinpeng Ma (IHEP)

Participants: 114

➔ Summary We

<https://indico.ihep.ac.cn/event/14765/>



MTCA workshop for accelerator and physics in Japan

26-28 October 2021
Virtual (Zoom)
Asia/Tokyo timezone

Please look in the "News" for the mail list.

Overview

News

Timetable

Timetable at a Glance

MTCA Tutorial in Japanese

Presentation instruction

Book of Abstracts

Contribution List

Participant List

The MTCA workshop for accelerator and physics in Japan 2021 will be held in a virtual format. The goal of this workshop is to boost the application of MTCA in Japan by exchanging the information and experiences. The first day, Oct 26, is dedicated for the [tutorial session in Japanese](#). The other two days consist of [oral presentations](#).

Zoom link for the workshop was sent on [October 25 \(Mon\)](#) to the registered mail addresses. [Presentation instruction](#) explains the procedure for the speakers to follow.

Dates: Oct 26 (Tue) - 28 (Thu), 2021

Venue: Virtual (Zoom)

Registration fee: Free

Official language: English except the tutorial sessions in Japanese on Oct 26

Organizer: Fumihiko Tamura (J-PARC)

Participants: 132

➔ Summary We

<https://conference-indico.kek.jp/event/153/>

Community is steadily growing...

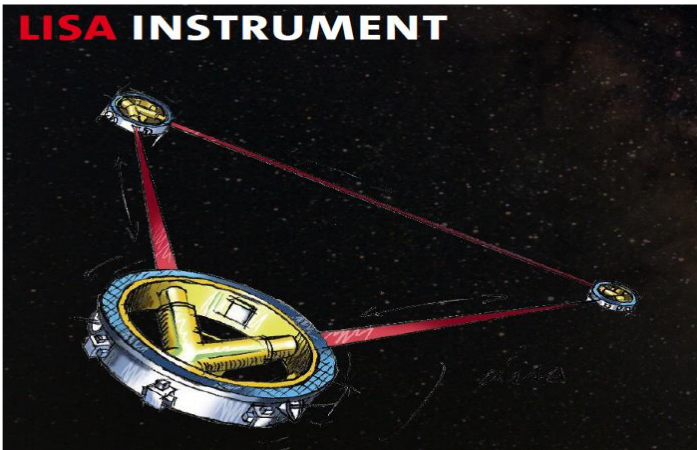
Looking forward on updates & news from:

Astrophysics Observatories



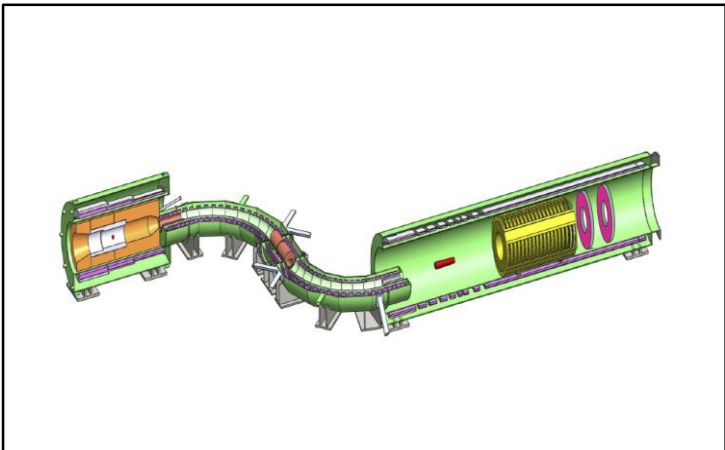
By Mathias Richerzhagen (ESO)

Gravitational Wave Detection



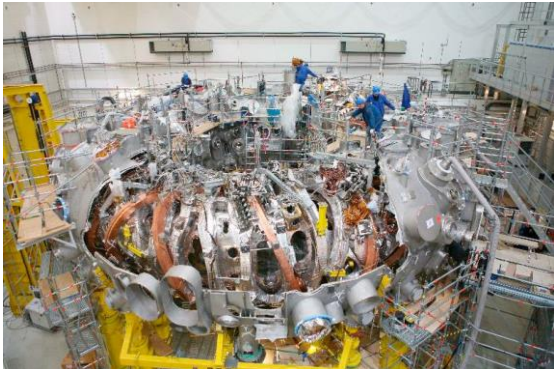
By Oliver Gerberding (UniHH)

Mu2e experiment at Fermilab



By Matthew Jones (Purdue Uni.)

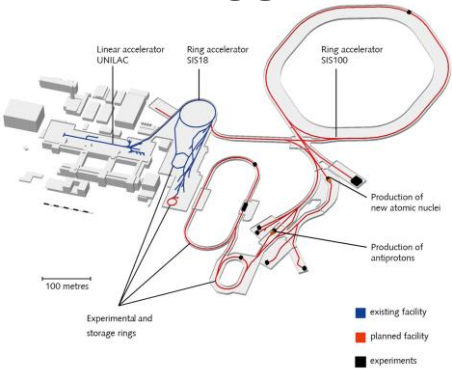
W7-X Stellerator



SPS – Super Proton Synchr. Spallation Neutron Source



FAIR - GSI

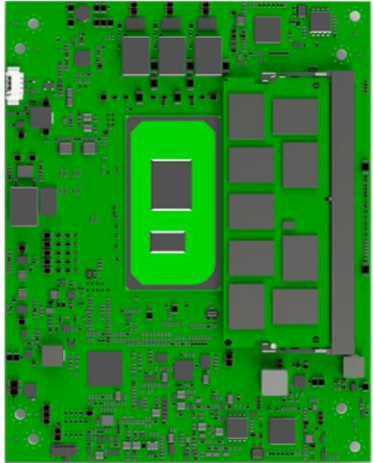


Focus

Beside many hardware / software & implementation novelties

➔ Session dedicated to “Next Generation MicroTCA” PICMG Working Group

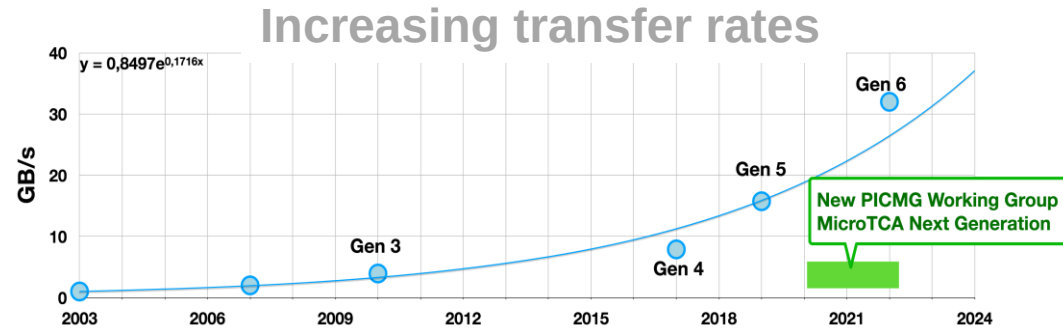
Technology Trends: CPU & FPGA COM+HPC



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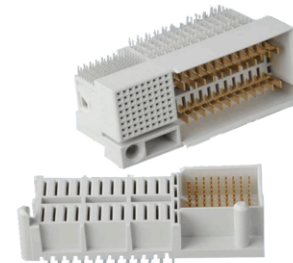


Challenges: Power

- **Challenge: 200 W per slot**
 - Limitation of AMC connector: 8 pins @ 10.8 V = 98 W
 - Limitation of Power Module connector
- **Solution:**
 - Use one more power pin on AMC
 - With optional 2nd AMC connector
 - Use 2 Power Module connectors

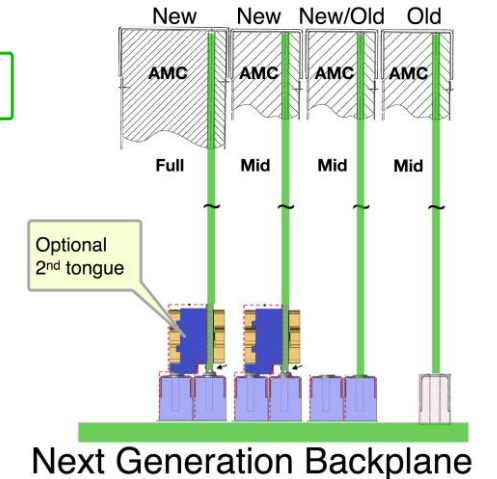
110 W

220 W



- **2 kW crate cooling**

AMC Compatibility



Workshop organized by

Advisory committee:

Kay Rehlich (Chair)	DESY
Holger Schlarb (Chair)	DESY
Tobias Hoffmann	GSI
Thomas Holzapfel	powerBridge
Christian Ganninger	nVent - Schroff GmbH
Heiko Koerte	N.A.T.
Rong Liu	Beijing DAQ Technology Co. Ltd
Xinpeng Ma	IHEP
Fumihiko Tamura	J-PARC Center, Japan
Daniel Tavares	LNLS
Axel Winter	MPI Plasmaphysik
Z. R. Zhou	NSRL, USTC, China

Local organization:

Hanna Kunze	DESY
Gohar Ayvazyan	DESY



Hanna Kunze

Valuable input for shaping the workshop!!!

Thank you!

**Wish you an informative
and pleasant
10th MicroTCA Workshop!**

Thank you for your attention!