2024 MicroTCA/ATCA for Large Scientific Facility Control International Workshop

The Workshop promotes and coordinates the development of MTCA/ATCA standards and systems in China and East Asia, especially in data acquisition, digital signal processing, measurements, instrumentations, Controls, and Analog Circuit (Microwave/RF) applications in particle accelerators, high energy physics, photon/neutron sciences, plasma fusion, high power laser, and industries. The workshop also provides a platform to discuss technologies, and collaborations.

The Workshop's main Topics include:

1) Applications in Research Facilities
2) Applications in the Industry
3) New Products
4) New Technologies
5) Future of Standard and Interoperability
6) Software and Firmware
7) Industry Exhibition – Presentation of Modules and Systems from Industry and Research

1. Venue Location:

The third floor in the podium building of Material Science Research Building, University of Science and Technology of China (USTC) East Campus

2. Registration

Sep.18 10:00-20:00, New Century Hotel Hefei

Sep.18 10:00-17:00, Venue Location

3. Accommodation

New Century Hotel Hefei: for both Foreign and Chinese participants.

Yilin International Hotel: only for Chinese participants.

Accommodation fee is not included in the registration fee.

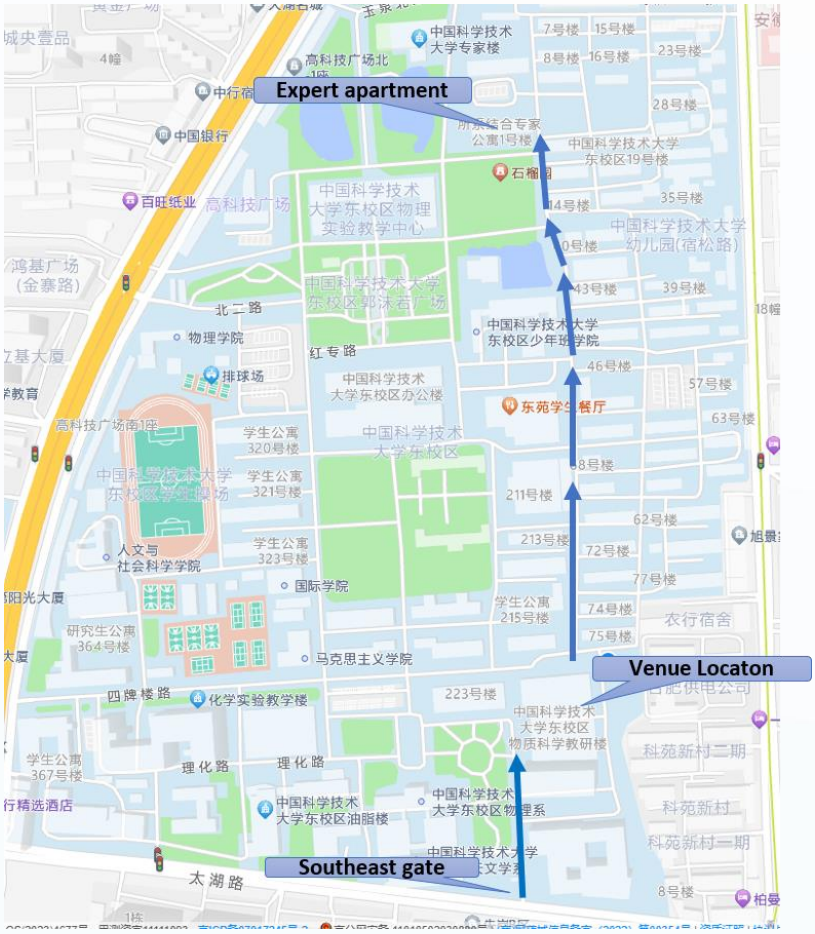
4. Meals and Banquet

Sep.18	dinner	Expert building
Sep.19	lunch	Expert building
Sep.19	dinner	New Century Hotel Hefei
Sep.20	lunch	Expert building
Sep.20	dinner	Expert building

5. Organizers

University of Science and Technology of China

6. Route Reference



7. Local Organizing Committee Contact

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8. Considerations

Please enter the campus with your meeting badge during the meeting. If you do not have access to the campus, please register at the hotel to obtain a badge.

ORGANIZATION

Chair

Yalin Lu (Chair) , USTC

Holger Schlarb (Co-chair) , DESY

Program Committee

Bo Liu (Chair) , SARI

Mark Plesko (Co-Chair) , Cosylab

Jianshe Cao (Co-Chair) , IHEP

Lin Wang , USTC

Paul Chu , Nanjing University

Ruishi Mao , IMP

Zeran Zhou , USTC

Liqun Hu , ASIPP

Rong Liu , Beijing Normal University

Lei Shi , IASF

Junqiang Zhang , Chongqing University

Local Organizing Committee

Zeran Zhou (Chair) , USTC

Yanfeng Sui (Co-chair) , IHEP

JianYe , Cosylab

Xinpeng Ma , IHEP

Hongrui Cao , ASIPP

Jie Zhang , IHEP

Hongli Ding , IASF

Min Li , IMP

Qiuping Huang , USTC

Chen Yu , USTC

WORKSHOP AGENDA

September 18, 2024

Time	Title	Speaker	Host
14:00-14:15	Tutorial Welcome	Rong Liu	Rong Liu
14:15-14:45	LLRF Application MTCA.4	Nan Gan	
14:45-15:15	MicroTCA-based Timing System	Fang Liu	
15:15-15:50	Coffee Break		
15:50-16:20	MTCA Management	Herbert Erd	Rong Liu
16:20-16:50	Application Development on the MicroTCA.4 Platform: Challenges and Solutions	Cagil Guemues	
16:50-17:20	FWK - an Open-source FPGA Framework by DESY for Large Scientific Projects	Michael Buechler	
17:20-18:50	Dinner		

September 19, 2024

Time	Title	Speaker	Host
8:30-8:40	Workshop Welcome	Yalin Lu	Zeran Zhou
8:40-9:05	Summary and Highlights of 12th MicroTCA Workshop at DESY in Hamburg	Holger Schlarb	
9:05-9:30	Electronic Development Planning of S3FEL Beam Measurement System	Lei Shi	
9:30-9:55	HALF Microwave System Development	Jian Pang	
9:55-10:20	Progress and Industry Application of MTCA/ATCA Localization Platform	Hongrui Cao	
10:20-10:55	Coffee Break + Photograph		
10:55-11:20	Preliminary Deployment of MTCA.4 Based LLRF System for the S3FEL LINAC	Jinfu Zhu	Yanfeng Sui
11:20-11:45	An Interface RTM Board for HEPS Timing Based on MicroTCA.4	Jin Zhang	
11:45-12:10	Main Oscillator with Sub-fs Resolution and High Performance Local Oscillator Generation in MicroTCA.4	Jiaoni Bai	
12:10-13:40	Lunch		

13:40-14:00	Motion Controller in MicroTCA	Michael Randall	Xinpeng Ma
14:00-14:25	MicroTCA Specification Developments	Kay Rehlich	
14:25-14:50	MTCA in Photon Science - the New Motion Controller in Action	Martin Tolkiehn	
14:50-15:15	Status of the DAMC-UNIZUP AMC Card for the Future PETRA IV BPM Electronics	Manuel Cargnelutti	
15:15-15:40	RIGOL Modular RF Arrays Help the Application of Large Scientific Devices	Bin Wang	
15:40-16:00	Coffee Break		
16:00-17:30	Round Table Discuss		Zeran Zhou, Rong Liu
17:30-18:00	Bus to Hotel		
18:00-20:00	Workshop Dinner		

September 20, 2024

Time	Title	Speaker	Host
8:30-9:00	Super Tau Charm Facility: Physics and Challenges	Zhengguo Zhao	Holger Schlarb
9:00-9:25	Progress on Super Tau Charm Facility Accelerators	Qing Luo	
9:25-9:50	Design of Debug and Slow Control Interface for Complex and Distributed Electronic System	Tao Xue	
9:50-10:15	MTCA Status on Linac of IHEP	Xinpeng Ma	
10:15-10:40	Coffee Break		
10:40-11:10	Terahertz Near-field Optics under Multiple Physical Fields	Yalin Lu	Lei Shi
11:10-11:35	The Progress of the MTCA.4 Based LLRF System in LUTF	Junqiang Zhang	
11:35-12:00	AI and Data Applications for Particle Accelerators	Paul Chu	
12:00-13:30	Lunch		

13:30-14:00	Can the Control System be Bought from Industry?	Mark Plesko	Martin Tolkiehn
14:00-14:25	Design and Development of Timing System Prototype Using MicroTCA.4 AMC for CSNS-II	Sinong Cheng	
14:25-14:50	MicroTCA Infrastructure and Hardware Portfolio for Scientific Applications	Michael Fenner	
14:50-15:15	Introductions on Struck MTCA.4 based Solutions	Rong Liu	
15:15-15:35	Coffee Break		
15:35-16:00	LLRF Development for CSNS LINAC based on MTCA	Zhexin Xie	Hongrui Cao
16:00-16:25	Acquisition and Playback Equipment Based on MTCA and its Progress	Yang Wang	
16:25-16:50	Applications of MTCA in Hybrid Pixel Detectors for HEPS and SHINE	Jie Zhang	
16:50-17:05	Close Out	Zeran Zhou	
17:05-18:05	Dinner		

INDUSTRIAL EXHIBITION

ROHDE&SCHWARZ
Make ideas real

Rohde & Schwarz is striving for a safer and connected world with its Test & Measurement, Technology Systems and Networks & Cybersecurity Divisions. For 90 years, the global technology group has pushed technical boundaries with developments in cutting-edge technologies. The company's leading-edge products and solutions empower industrial, regulatory and government customers to attain technological and digital sovereignty. The privately owned, Munich based company can act independently, long-term and sustainably. Rohde & Schwarz generated net revenue of EUR 2.78 billion in the 2022/2023 fiscal year (July to June). On June 30, 2023, Rohde & Schwarz had around 13,800 employees worldwide.

罗德与施瓦茨业务涵盖测试测量、技术系统、网络与网络安全，致力于打造一个更加安全、互联的世界。 成立 90 年来，罗德与施瓦茨作为全球科技集团，通过发展尖端技术，不断突破技术界限。公司领先的产品和解决方案赋能众多行业客户，助其获得数字技术领导力。罗德与施瓦茨总部位于德国慕尼黑，作为一家私有企业，公司在全球范围内独立、长期、可持续地开展业务。

Cosylab 是全球首屈一指的技术公司，为全球最复杂、精密和先进的系统构建并集成一流的软件和电子产品。

公司成立于 2001 年，主要研发各种大型物理科学实验装置的控制系统，以及为用于癌症治疗的复杂医疗设备提供全堆栈的软件和集成服务。公司已经参与了全球 100 多个大型科学装置的建设，积累了多年的大型科学装置控制系统的研发经验，着力为科研机构打造可靠、高效、易用的控制系统解决方案。苏州科斯拉博控制系统有限公司是其在中国的全资子公司。

上海奕杭信息科技有限公司成立于 2017 年 8 月，专注于电子测量测试仪器的销售、租赁及维修服务。仪器技术培训及咨询。公司总部位于上海，在北京、西安、成都、深圳、武汉等主要城市拥有销售及技术服务人员。核心团队均来自行业内领先厂家，具有数十年电子测试仪器服务经验。我们专注于引进全球领先品牌，给国内电子工程师提供更多的电子测量仪器品牌。同时提供完善的技术支持、售前、售后服务。

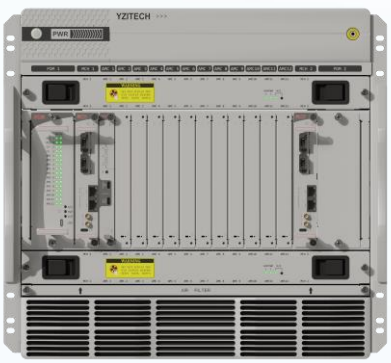
合肥一测电子有限公司位于合肥市包河区马鞍山路（地铁一号线），专业经营各类国产、进口电子测试测量、分析和生化仪器仪表。公司集近 20 年之丰富经验专业为用户提供测试和实验方案，在全省的高校、企业等领域建立了良好的合作关系，提供本地化服务，为全省高校、科研、工业、广播、电力和通信等部门服务。公司建立三个部门：高校仪器部、产研仪器部和售后服务部，其中高校仪器部主要为高校研究部门及电力电子电工、生化等方面的仪器选型配套销售服务。产研仪器部用户涵盖全省各知名上市公司和大中小型企业单位，包括电力、通信、广播等。售后服务部主要负责公司的仪器售后服务工作。 公司将不懈努力、不断创新，为客户提供更加丰富的产品组合以及更加全面、专业而经济的解决方案，成为中国测试测量领域的领先供应商。以诚信为准则，秉承品质创造价值，服务赢得信赖的宗旨为客户服务！

中能聚控 ZOONENG

安徽中能聚控科技有限公司(简称中能聚控)成立于 2022 年，是一家由合肥综合性国家科学中心能源研究院入股的高新技术企业。公司拥有一支由国内聚变诊断测量领域顶尖专家打造的高水平创新技术团队，坚持以聚变堆诊断测量为抓手，以国内外核测量技术应用为契机，致力于成为国内外聚变/裂变堆诊断测量领航企业。

公司坚持以原始创新作为重要策源，把技术创新作为主攻方向，加强以企业主导的产学研深度融合，强化目标导向，提高科技成果转化和产业化水平。紧紧围绕核聚变测量与控制的上下游产业布局发展，推动未来科技前沿领域高端测量装备研发技术和制造工艺的不断革新。

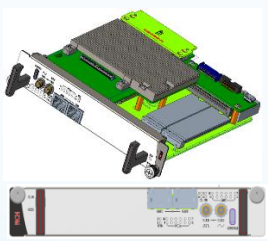
MTCA 相关产品



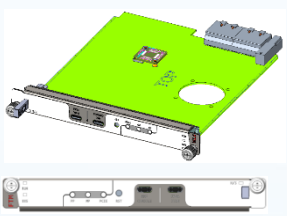
10U12 槽 MTCA.4 机箱

2U7 槽 MTCA.4 机箱

MTCA 采集卡



MCH



MMC AMC 承载卡

MMC 子卡

安徽中能聚控科技有限公司
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地址：安徽省合肥市高新区大数据产业园 A1 栋 9 楼

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of electronic test & measurement instruments.SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, isolated handheld oscilloscopes, function/arbitrary waveform generators, RF/MW signal generators, spectrum analyzers, vector network analyzers, digital multimeters, DC power supplies, electronic loads and other general purpose test instrumentation. Since its first oscilloscope was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement.

鼎阳科技（SIGLENT）是通用电子测试测量仪器领域的行业领军企业，A 股上市公司。2002 年，鼎阳科技创始人开始专注于示波器研发，2005 年成功研制出鼎阳第一款数字示波器。历经多年发展，鼎阳产品已扩展到数字示波器、手持示波表、函数/任意波形发生器、频谱分析仪、矢量网络分析仪、射频/微波信号源、台式万用表、直流电源、电子负载等基础测试测量仪器产品，是全球极少数能够同时研发、生产、销售数字示波器、信号发生器、频谱分析仪和矢量网络分析仪四大通用电子测试测量仪器主力产品的厂家之一，国家重点“小巨人”企业。同时也是国内主要竞争对手中极少数同时拥有这四大主力产品并且四大主力产品全线进入高端领域的厂家。公司总部位于深圳，在美国克利夫兰、德国奥格斯堡、日本东京成立了子公司，在成都成立了分公司，产品远销全球 80 多个国家和地区，SIGLENT 已经成为全球知名的测试测量仪器品牌。

炬讯信息 JUXUN ICT

河南炬讯信息技术有限公司成立于 2016 年，获得“高新技术企业”和“ISO9001 质量管理体系认证”等相关资质。公司目前主要业务方向为信号采集记录回放设备、信号处理硬件平台、硬件平台国产化等领域，已取得二十余项自主知识产权并与信息工程大学、中电科 39 所、36 所、15 所、中国空间技术研究院、航天科工 8511 所、中科院高能所等央企和特殊单位建立了深度的业务合作关系。于 2022 年挂牌“中电科 39 所郑州研发中心”。

公司研制的高性能无线信号采集记录回放设备，具有大带宽、高速度、大容量、应用灵活、稳定可靠的特点，在军事、训练和教学等领域获得广泛应用。在信号处理硬件平台方向，采用 VPX、ATCA、mTCA 三类平台的技术标准，自主研发了多类型的硬件平台。相继应用于无线信号采集记录回放设备、相控阵天线信号处理设备、高能粒子加速器 LLRF 设备等，均获得良好的效果。在国产化领域，基于电子装备中芯片国产化替代的技术原则，研发了 ADC、DAC、FPGA、CPU 等均采用国产化芯片的高性能信号处理平台，并在应用中取得良好效果。

INSTRUMENTATION TECHNOLOGIES

Instrumentation Technologies is an experienced high-tech company founded in 1998 in Slovenia. Today it is one of the world's leading providers of instrumentation used for high-speed signal acquisition and processing. Their devices are used in particle accelerators, proton therapy medical applications, and in industries such as aerospace, transportation, and energy.

The LIBERA brand identifies the solutions, products and services provided in the accelerator field, where they are used for measuring critical beam parameters (Beam Position and Phase, Beam Current and Beam Losses) and for generating, distributing, and controlling the RF field inside of the accelerating structures of the machine. Some of the measured parameters are also used in feedback loops to optimize the machine's performance. Today, LIBERA electronics are a reference standard in the field, and are considered state-of-the-art in many applications.

Many of the solutions which are today offered by the company are the result of collaboration projects with institutes and laboratories worldwide.

The Instrumentation Technologies team continues working with passion to create products and services that set new standards and exceed the boundaries of existing practices.