

MSC TRAINING SYMPOSIUM

March 25 - 28 Anaheim, California



Presidents Message

Welcome to the 2024 MSC Training Symposium. The conference has promoted education and professionalism in the measurement sciences for over half of a century. The 2024 theme is: **Quantum Revolution**. Come explore Quantum Metrology, Quantum Engineering, and Quantum SI! The conference will offer many exceptional measurement related courses and technical sessions which will broaden one's knowledge in a wide range of disciplines including Quantum Metrology. Our dynamic Keynote Speakers will inform us of the latest industry trends of the new Quantum SI. This year, MSC will feature a special Panel Session titled "NIST On a CHIP". This panel will discuss the innovations and future of Quantum Metrology.



The 2024 conference technical program will feature advanced courses for those seasoned measurement industry professionals seeking to enhance their abilities. Additionally, we will offer basic to intermediate courses that will provide foundational and substantive measurement training in a variety of disciplines. As always, there will be discussions on advances and changes occurring in the measurement industry as well as the opportunity to collaborate and expand one's professional network.

The MSC Scholarship and Technical Academy programs reach out to prospective students to consider careers in the measurement community both commercially and in the government. We invite our participants and manufacturers to consider supporting these student programs which represent our future.

Our Exhibit Hall will feature the latest innovative measurement equipment and services. We invite you to visit the MSC Exhibit Hall during the scheduled viewing times to engage in the latest advanced products and services from innovative companies serving the measurement community. The exhibit hall will be open to all measurement personnel.

The conference venue is the world-renowned Disneyland® Conference Center in Anaheim, CA.

I look forward to seeing you at the 2024 MSC Training Symposium **March 25-28**.

Dawn Cross, President

Disneyland® Hotel Convention
Center



Disneyland® Hotel Convention Center

1150 West Magic Way, Anaheim, California 92802

(714) 520-5005

<https://annualconf.msc-conf.com/hotel/>

March 25—28, 2024 Anaheim, California

MSC Training Symposium

Course Planner



Monday March 25	Tuesday March 26	Wednesday March 27	Thursday March 28
Tutorial Workshops Full Day T01	Tutorial Workshops Full Day T04	Exhibit Hall	Exhibit Hall
	Tutorial Workshops Half Day AM T02, T03, T06, T08	N10: NIST on a CHIP Panel	Technical Sessions & Hands-On Workshops 1A, 1B, 1C, 1D 2A, 2B, 2C, 2D 3A, 3B, 3C, 3D 4A, 4B, 4C
	Tutorial Workshops Half Day PM T10, T11	Tutorial Workshops 3/4 Day T07, T14	
	NIST Seminars 2 Day N01		
	ASQ-CCT 2 Day		
NIST Seminars 1 Day N04	NIST Seminars 2 Day N07		
	NIST Seminars 3 Day N02		
	NIST Seminars 1 Day N03, N06	NIST Seminars 1/2 Day N08	NIST Seminars 1 Day N09
	Exhibitor Reception	President's Reception	

Register at: msc-conf.com

866 - 672 - 6327

2 Day Course

ASQ-CCT

ASQ-CCT ASQ Certified Calibration Technician (CCT) Refresher Tutorial

Instructor: Dr. Milton Krivokuca

2 Days: Monday – Tuesday

Required book: *CCT Primer*, The Quality Council of Indiana provided with the course registration.

1 Day Course

NIST On a CHIP Panel

N10 NIST On a CHIP: Accelerating Technology Through Agile Metrology

Leaders: Jay Hendricks and Barbara Goldstein, *NIST*

Panel Members: Jeremy Latsko, *AFMETCAL*, Michael Todd, *APSL*, and Ed Trovato, *Naval Surface Warfare Center*

1 Day: Wednesday

Multi-Day Courses

NIST Seminars



No2 Hands-on Workshop on Assessing and Reporting Measurement Uncertainty

Speakers: William Guthrie and Jack Prothero

3 Days: Tuesday – Thursday

No1 Fundamentals of Metrology

Speakers: Micheal Hicks and Mark Ruefenacht

2 Days: Monday - Tuesday

No7 NIST Pressure and Vacuum Measurement

Speakers: Jacob Ricker

2 Days: Tuesday - Wednesday

Exhibit Hall

The MSC Exhibit Hall features the finest in measurement equipment and services. We invite you to visit the MSC Exhibit Hall during the scheduled viewing times to engage in the latest of advanced products and services from innovative companies serving the measurement community.

Exhibit Hall Hours: Wednesday: 7:30 AM - 5:00 PM, Thursday: 7:30 AM - 12:00 PM

Exhibitor Reception

Tuesday, March 26th 6:00pm

Enjoy a delightful variety of foods and beverages. On Wednesday and Thursday we provide three access times during the day. This allows time for both the program sessions and one on one time with the exhibitors and their latest knowledge and technical equipment. Come, learn, and network.

Full Day & Half Day Courses

NIST Seminars

Full Course Descriptions at msc-conf.com



- No3 An Introduction to Time and Frequency Metrology**
Speaker: Andrew Novick Full Day: Tuesday
- No4 Introduction to Humidity and Trace Measurement**
Speaker: Chris Meyer Full Day: Monday
- No6 Introduction to Contact Thermometry: Theory and Practice**
Speakers: Karen Garritty and Chris Meyer Full Day: Tuesday
- No8 Introduction to Photonic Sensing and Optical Based Sensors**
Speaker: Kevin Douglass Half Day: Wednesday 1:30pm - 5:00pm
- No9 Auditing, Traceability, and Auditing of Traceability**
Speaker: Jeffrey Guerrieri and Rob Knake Full Day: Thursday

Full Day & 3/4 Day Courses

Tutorial Workshops

Monday - Wednesday



- To1 Advanced MET/CAL Programming With Any Standard**
Speaker: Mike Schwartz Full Day: Monday
- To4 How to Select, Implement, and Maintain Calibration Software Systems**
Speaker: Walter Nowocin Full Day: Tuesday
- To7 How Do I Plan for PT/ILC and the Risk of Evaluation Thereof?**
Speaker: Yvette Volschenk 3/4 Day: Wednesday 10:45am - 5:00pm
- T14 GXP Metrology: A Strategic Approach to Diopharma Calibration Process Management**
Speaker: Miguel Cerezo 3/4 Day: Wednesday 10:45am - 5:00pm

Luncheon Keynote Speakers

Monday, March 25th: Michael Klyde

Tuesday, March 26th: Jim Kushmerick

Wednesday, March 27th: Kurt Floren & Woodington Award Presentation

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Tutorial Workshops

Full Course Descriptions at msc-conf.com



- T02 Understanding Instrument Specifications**
Speaker: Michael Johnston Half Day: Tuesday 8:00am - 12:00pm
- T03 Risk Management and Quality Improvement Methodologies In a Laboratory—Accreditation Perspective**
Speakers: Prasanth Ramakrishnan and Prafulla Yelve Half Day: Tuesday 8:00am - 12:00pm
- T06 Living Standard—Understanding ISO 6789-2:2017 Requirements for the Calibration of Torque Wrenches**
Speaker: Peter Jager Half Day: Tuesday 8:00am - 12:00pm
- T08 Fundamentals of Decision Rules and Conformity Decisions**
Speaker: Jeff Gust Half Day: Tuesday 8:00am - 12:00pm
- T10 ISO/IEC 17025:2017 Testing vs. Calibration**
Speaker: Emil Hazarian Half Day: Tuesday 1:15pm - 5:00pm
- T11 Internal Auditing of Your ISO/IEC 17025 Accredited Laboratory**
Speakers: Prasanth Ramakrishnan and Prafulla Yelve Half Day: Tuesday 1:15pm - 5:00pm
- T12 Metrological Characteristics of Measuring Devices**
Speaker: Emil Hazarian Half Day: Wednesday 1:45pm - 5:00pm
- T13 Implementing Measurement Systems Analysis, Statistical Process Control and Process Capability Studies**
Speakers: Mark Lindsey Half Day: Wednesday 1:45pm - 5:00pm
- T15 GWP: Good Weighing Practices—A Science-Based Approach to Balance and Scale Metrology**
Speaker: Ian Ciesniewski Half Day: Wednesday 1:45pm - 5:00pm

NCSLi and MSC Board Member Only Meeting

Tuesday 3:00pm

NCSLi 141B Measurement Information & Automation

Wednesday 10:45am

NCSLi Healthcare Metrology Committee

Wednesday 4:00pm



7:00 am— Registration Desk Open
4:00 pm

	Track A	Track B	Track C	Track D
Session 1 8:30 am — 10:00 am	1A: Vulnerability of Metrology M&TE Pt. 1 Speaker: Suren Hazarian	1B: NDT Quality Testing Speaker: Mark Lindsey	1C: ISO\IEC 17025 SoA Integration with Metrology Software Speaker: Michael Schwartz	1D: Applying IoT Technologies in a Calibration Laboratory Setting to Improve Efficiency and Reduce Costs Speaker: Mitchell Jones

10:00 am— Morning Break—Exhibit Viewing
10:30 am

Session 2 10:45 am — 12:15 pm	2A: Vulnerability of Metrology M&TE Pt. 2 Speaker: Suren Hazarian	2B: The Hidden Value of FDA 21 CFR Part 11 — Electronic Records and Electronic Signatures Speaker: Walter Nowocin	2C: Dry Block Calibrator Speaker: Scott Crone	2D: Proficiency Testing: Defining Expectations, Roles, and Risks for all Involved Speaker: Chuck Ellis
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12:15 pm — 1:30 pm Luncheon and Scholarship Presentations

Session 3 1:45 pm — 2:30 pm	3A: Probability of False Acceptance Estimation for Asymmetrical Tolerances Speaker: Pedro Adame	3B: Fluke Calibrator (Bring a Meter) Speaker: Marty Kidd	3C: Deadweight Tester Speaker: Scott Crone	3D: The Importance of Dynamic Calibration of Passive I-V Curve Tracers Speaker: Alexander Cimaroli
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2:30 pm — 3:00 pm Afternoon Break—Exhibit Viewing

Session 4 3:15 pm — 4:45 pm	4A: Exploring Temperature Calibration Efficiency: A Comparative Study of Small vs. Full-Sized Triple Point of Water Cells Speaker: Kurt Zabriskie	4B: Utilizing Digital Equipment Specifications to Help Automate the Measurement Uncertainty Budgeting Process Speaker: Curt Casto, MOX	4C: Microwave and RF: Good Measurement Practices for Calibration Laboratories Speaker: Brian Lee	
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Symposium General Information

Full Course Descriptions at msc-conf.com



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Registration

Course Fee Schedule

Register at
msc-conf.com

4 Day Inclusive Pass:	\$ 1,595
3 Day Inclusive Pass:	\$ 1,495
2 Day Inclusive Pass:	\$ 1,295
1 Day Inclusive Pass:	\$ 995
Exhibit Hall Passes:	Free

Hotel and Theme Park Information

Disneyland® Hotel Convention Center

MSC Room Rates: \$304/night + taxes

To Book Hotel Room & Purchase Discount Theme Park Tickets, go to:
<https://annualconf.msc-conf.com/hotel/>

1150 West Magic Way, Anaheim, CA 92802
(714) 520-5005



MSC Business Office

MSC Training Symposium

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Information: 866 - 672 - 6327

Cage Code: 37GZ0