MTTRF and E*i*AM-CNC ANNUAL MEETING 2019

Welcome to the Annual Meeting 2019

It is our great pleasure to invite you to the MTTRF and E*i*AM-CNC Annual Meeting 2019.

The Machine Tool Technologies Research Foundation (MTTRF) was established in 2002 to support the research and education activities for the promotion of machine tool technologies. Its operation started in 2004 by granting equipment loan awards and scholarship awards to university professors and research scholars on world-wide basis. Since then, the Annual Meeting has been held every year to present the results of research performed by professors and scholars who are the recipients of the MTTRF Equipment Loan Award.

The Annual Meeting is a 2-day conference consisting of the following:

Part 1: MTTRF Annual Meeting 2019 --- Annual activity report by the MTTRF Equipment Loan Award recipients

Part 2: Progress report of the last year of the E*i*AM-CNC project that has been launched since July 2018

We will be grateful if you could kindly participate in the meeting to learn and evaluate our on-going research and exchange ideas on further advancement of the machine tool technology research.

We look forward to welcoming you at the MTTRF and *i*AM-CNC Annual Meeting 2019.

Sincerely,

Kazuo Yamazaki, Dr. of Eng.
President

Date

June 27th– 29th, 2019

Location

InterContinental Mark Hopkins

1 Nob Hill
San Francisco, CA 94108 USA
Phone:(415) 392-3434

Organized By

Machine Tool Technologies Research Foundation

Co-Sponsored By

IMS-Mechatronics Laboratory, University of California, Davis

Precision Manufacturing Center, University of California, Berkeley

ARMS Laboratory, University of California, Davis

DMG MORI Co., Ltd.

Schedule of Events

(Schedule subject to change without notice)

June 27th (Thr)

18:00- 18:30 Early Registration

18:30- 20:00 Welcome Dinner

June 28th (Fri)

MTTRF Annual Meeting 2019

07:00- 08:30 Registration

08:30- 10:00 Session1

10:30- 12:00 Session2

12:00- 13:30 Lunch

13:30- 15:00 Session3

15:30- 17:00 Session4

18:30- 20:30 Dinner Banquet

June 29th (Sat)

MTTRF Annual Meeting 2019

08:30- 10:00 Session5

10:30- 12:00 Session6

12:00- 13:30 Lunch

E*i*AM-CNC Annual Meeting 2019

13:30- 14:40 Session1

15:10- 16:30 Session2

17:30- 20:00 Farewell Dinner

Meeting Registration and Accommodation Reservation

Meeting Registration

The registration form can be obtained from the MTTRF website: http://www.mttrf.org/. The deadline for registration is May 27, 2019. The registration fee is **$500** per person for this meeting. The fee includes all meals (breakfast, lunch, dinner and banquet), coffee breaks during the meeting, and Proceedings. Payment can be made by money order, bank cashier's check or company check payable to "MTTRF" and sent to the following address.
If cancellation is received on or before May 27 a full refund will be made. If cancellation is received after May 27, there will be no refund.

Address:
Machine Tool Technologies Research Foundation
1100 Sacramento St., #1004
San Francisco, CA 94108, USA
Phone: (415) 674-5744
Fax: (415) 359-0864
E-mail: inquiry@mttrf.org

Accommodation Reservation

Room reservation for the InterContinental Mark Hopkins must be made through MTTRF. Please refer to the registration form for more details.

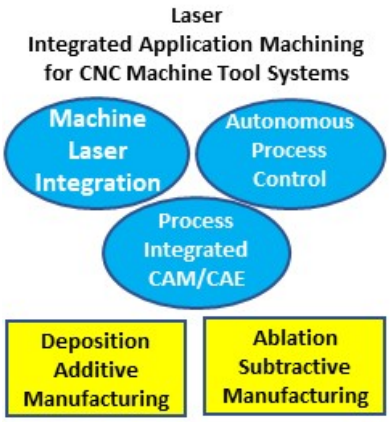
InterContinental Mark Hopkins
1 Nob Hill
San Francisco, CA 94108 USA
Phone:(415) 392-3434
http://www.intercontinentalmarkhopkins.com

MTTRF Presentation Topics

- MTTRF equipment loan: Research & education at UW-Madison, *Prof. Pfefferkorn, University of Wisconsin Madison*
- 1. Machining error correction based on predicted machining error caused by elastic deflection of tool system, 2. Intelligent monitoring system to detect tool chipping in peripheral end-milling based on in-process milling force prediction, *Prof. Shirase, Kobe University*
- Influence of CAM software on S-shaped machining test of 5-axis machining center, *Prof. Ihara, Osaka Institute of Technology*
- Adaptive toolpath for milling of thin walled parts, *Prof. Campatelii, University of Firenze*
- 1. Application of low and high frequency vibration assistance in grinding and surface structuring, 2. Cognitive machining by sensor integration in tooling system, *Prof. Bleicher, Vienna University of Technology*
- Iterative learning and nonlinear control of industrial feed drive systems, *Prof. Uchiyama, Toyohashi University of Technology*
- Design and characterization of a dynamic powder splitting system for powder flow control in the Directed Energy Deposition manufacturing process, *Prof. Soshi, University of California Davis*
- 1. Overview and report on the use of the MTTRF award for research and teaching at UCD Ireland, 2. Control of surface integrity of bioceramics in ultrasonic grinding, *Prof. Byrne, University College Dublin*
- Challenges of a general approach for machining external and internal involute gears, *Prof. Goch, University of North Carolina at Charlotte*
- In process measurement of lubricated friction coefficient & virtual investigation of thermal machine tool errors, *Prof. Wegener, ETH Zurich*
- Manufacturing of components with a hardened top layer on a Turn-Mill-Laser Center, *Prof. Lauwers, Katholieke Universiteit Leuven*
- 1. Turning of difficult-to-machine materials with high pressure coolant, 2. High-quality and high-efficiency machining of CFRP with DLC-coated and diamond-coated end mills, *Prof. Hosokawa, Kanazawa University*

Extended *i*AM-CNC

iAM-CNC" was initiated in 2012 at both the IMS- Mechatronics Laboratory of University of California, Davis and at the Precision Manufacturing Center of University of California, Berkeley as a 5-year project and completed in 2017 with success. At the end of five years, it has been decided to extend the project for another 5 years with the focus on the laser integrated application manufacturing system. In the extended project, the following research are being included:



1. Deposition of materials with High Power Laser as additive manufacturing process.
    a. CAMAM – Development of CAM System for DLD (Direct Laser Deposition) type additive manufacturing
    b. Development of defects-free additive manufacturing by synchronization of powder-laser-machine motion response and by real time stability control of melt pool in DLD process
2. Ablation of materials with Femtosecond Pulse Laser as subtractive manufacturing process
    a. Fabrication of micro ball end mill made of binder-less polycrystalline and its performance study
    b. Fabrication of micro-linear electron dielectric accelerator made of pure sapphire
    c. Development of 3D ablation simulation system to be used for the determination of irradiation condition of m\femtosecond laser.
    d. Development of compact femtosecond laser irradiation module with flexible beam delivery cable.

MACHINE TOOL TECHNOLOGIES RESEARCH FOUNDATION

A machine tool is an extremely important piece of equipment known as a "Mother Machine", which is a necessary resource to promote the manufacturing activities in this society. For this reason, it is essential to promote human resources who can develop innovative technologies for advanced machine tool systems by encouraging the excellent scholars, educators and students to join and study in these fields.

To achieve this, Machine Tool Technologies Research Foundation (MTTRF) was established on October 25, 2002 as a nonprofit organization to help the activities of educators, students, professional researchers and technical specialists by providing them with machine tools, other manufacturing equipment, software and cash funds.

MTTRF envisions itself as a diversified foundation which values the following services through fields of academia as well as industry. To grow internationally as a well-known foundation, we strive to maintain the foundation with dignity and the highest ethical standards:

1. To provide the free loan of equipment and software to educators, students, professional researchers and technical specialists to conduct research and educational activities.
2. To provide scholarship funds to students and post graduate researchers to study and perform research in fields related to machine tool systems.
3. To communicate with educators, engineers and specialists in fields related to machine tool technologies to spread understanding about the latest information and encourage collaboration among the experts.
4. To provide funds to educators, professional researchers, meritorious students and engineering specialists to publish their knowledge.
5. To hold conferences on research developments.
6. To provide funds and administrative services to facilitate conferences and meetings for students, educators, professional researchers and technology specialists.
7. To finance travel and registration fees so that educators, meritorious students and professional researchers may attend professional conferences, meetings and seminars.
8. To finance travel expenses so that meritorious students, professional researchers and educators may visit educational and research institutes, public organizations and industries to exchange technological knowledge or study the emerging technologies.

The Foundation was approved as a nonprofit public organization by the Federal Government of United States of America under the Federal Internal Revenue Code 501 (c) (3) as well as by the Franchise Tax Board of the State Government of California in 2003.

MTTRF Headquarters:

1100 Sacramento St., #1004,

San Francisco, CA 94108, U.S.A.