



CSIR-CMERI DIAMOND JUBILEE YEAR



60 YEARS OF DEDICATED SERVICE TO THE NATION

About the Conference

Sustainable development of a national economy is driven by innovation, creativity, education and training that leads to technology and skilled human resources resulting accelerated product manufacturing for societal well being. Engineering of cost effective, intelligent and multifunctional products need smart manufacturing systems and processes embedded with a robotic framework. Incorporating such integrated product-process engineering techniques and management practices ensures competitive advantage for industries, fostering product innovation, responsiveness, lead time reduction, conservation of resources with minimal environmental impacts.

The focused theme for this two day IC-SMART conference is on **Enabling Technologies for Smart and Sustainable Manufacturing** towards achieving improved quality, productivity and reliability. The leading researchers, academicians, students and practicing engineers from various countries would discuss on recent developments, applications, challenges and techno-economical impacts related to various aspects of sustainable manufacturing, process automation, and robotic technologies for smart manufacturing including data analytics.

The pre-conference workshops on selected topics will focus on providing better insight to the students and young engineers through interactions with international experts via classroom and live demonstrations.

International Conference on Sustainable Manufacturing, Automation and Robotics Technologies (IC-SMART)

December 15-16, 2017
CSIR-CMERI, Durgapur

Contact

IC-SMART Secretariat

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Topics for Research Papers

Authors from R&D organizations Academia and industries are invited to submit research papers (Max of 6 pages) on the following themes. Short papers focusing on applications and case studies relevant to emerging technologies and practices having industrial relevance are also invited to submit in 2-4 pages.

• Product and Process Engineering

Product-process design, product life cycle management, techno-economical impact analysis, cost and value engineering, etc.

• Smart & Reconfigurable Machines/Robots

Design of smart machines/robots & subsystems, precision and multi-scale mechanisms, reconfigurable machines/robots, sensing and actuation subsystems, controllers, machine/robot vision systems, Intelligent Assists, Collaborative robots etc.

• Precision & Multi-Scale Manufacturing

Precision machining, molding, forming, casting, micro-nano scale manufacturing, characterization of surfaces, metrology, new materials and processing technologies, etc.

• Process Automation & Mechanization

Intelligent systems, manufacturing process automation, electro-mechanical systems design, hydraulic and pneumatically operated process automation systems, techno-economic assessments, etc.

• Robotic Systems and Applications

Industrial robots, assembly robots, robotic applications in manufacturing operator friendly robots; flexible-joint & impedance controlled robots; intelligent assist devices; exoskeletons and power augmenters; Various Autonomous and semi-autonomous robotic platforms (underwater/land/aerial) for possible interventions in inspection, material handling and repairs and other activities, mobility, navigation, guidance, control, motion planning, adaptability, perception, cooperative robots, physical human robot interaction etc.

• Emerging Industry 4.0 Technologies

Additive manufacturing, Product-Process data analytics, Bio-manufacturing, Digital manufacturing, Cyber physical systems in manufacturing, Robotics, automation & ICT technologies, Cognitive systems, etc.

About Pre-Conference Workshops

For the benefit of students, practicing engineers and young researchers four pre-conference workshops have been organized on **December 14, 2017**. In each workshops 4-5 class room lectures and 2 hours practical demonstrations in CSIR-CMERI laboratories have been planned. Resource persons are internationally renowned experts.

Registration may be made to any one of the workshops. Registered delegates may attend interested lectures in any of the workshops being held in parallel sessions. However, participation in live demonstration is limited to registered workshop. The topics covered in each workshop are given below.

WS – I: Additive Manufacturing

Workshop focus on various technologies being used in prototyping as well as in rapid manufacturing. The advanced techniques in data preparation including CAD data slicing, transferring formats, laser and other power sources, materials and properties of product built by layer-by-layer using real time case studies.

WS – II: Micro-Nano Systems Engineering

Aim is to give a comprehensive overview on scientific principles and techniques associated with design, manufacturing protocols, materials and system integration at nano-micro-meso scale. The topics include multi-scale product manufacturing paradigms; scaling laws, micro-mechanical processes; regenerative techniques; process modeling; MD simulations; micro machines design: precision drives, controls, sensors, and instruments. Further, few case studies on their applications in biomedical, sensors, and nano technology, etc. will be discussed.

WS – III: Robotics

Robotics is an interdisciplinary paradigm of research and the broad spectrum includes mobile/immobile underwater, land-based, aerial robotic systems. Aim is to obtain a comprehensive overview on scientific principles and techniques pertaining to design challenges for performance and efficiency, kinematics/dynamics, actuation, sensing and control, motion planning, adaptation, image processing, navigation, guidance, communication, and implementation. Case studies will be covered for thorough understanding and knowledge dissemination.

WS – IV: SMART Foundry

Aim is to give comprehensive overview of technologies that enables sustainable manufacturing of metal castings. The software, and hardware modules of SMART foundry that include computer aided design, methoding, data collection, rapid prototyped patterns, automated molding, casting and data analytics of metal casting will be demonstrated.

About Host Institute CSIR-CMERI

The Central Mechanical Engineering Research Institute (CMERI) is a premier R&D institute under the aegis of Council of Scientific & Industrial Research (CSIR), New Delhi. CSIR-CMERI has been engaged in R&D on modern technological areas like Advanced Manufacturing, Materials Processing, Design of Electro-Mechanical Systems, Design of Farm machineries and Process Equipment, Underwater and Surface & Field Robotics, Micro-Nano System Technology, Surface Engineering and Tribology, Clean and Green Energy Research etc. These laboratories are equipped with modern state of the art facilities and tools. In addition CSIR-CMERI provides value added technical services to various industries in testing and calibration, residual life assessment, condition monitoring, material and structural health monitoring etc.

Location

CSIR-CMERI is located about 10 km from Durgapur Railway Station and 1 km off to NH-2. Durgapur is 3 hours drive from Kolkata Airport and 20 minutes drive from Durgapur Airport (New Airport). The city is also well connected by train from Howrah railway station on Howrah-Delhi route.

Accommodations and Hotels

Delegates have to make the payments for accommodation in hotels or guesthouses. Durgapur is having standard and 3-star hotels, accommodations. Booking can be made directly or through organizers. CSIR-CMERI can provide sharing accommodation up to 50-60 student delegates @300/- per day. Booking will be made on first come first serve basis.

Scientific Advisory Committee

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Prof. Subhasish Bhowmik, IIST
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Conference Organizing Committee

- **Chief Patron:** Dr. Girish Sahni, DG, CSIR
- **Patron:** Dr. Harish Hirani, Director, CSIR-CMERI
- **Chair:** Dr. Nagahanumaiah (naga@cmeri.res.in; 9434181360)
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- **Souvenir - Advertisement Committee**
Dr. Anupam Sinha; Mr. R.P. Barnwal, Mr. Soumen Mandal ; Mr. Ravi Arun
- **Local Advisory Committee**
Dr. S N Shome, Dr. Avik Chatterjee and all other core committee members of CSIR-CMERI Diamond Jubilee committee

Sponsorship

- **Platinum Sponsorship:** Rs. 2,00,000
- **Diamond Sponsorship:** Rs. 1,50,000
- **Gold Sponsorship:** Rs. 1,00,000
- **Silver Sponsorship:** Rs. 75,00,000
- **Advertisement:** Rs. 50,000 (Full Page)
Rs. 30,000 (Half Page)

REGISTRATION FORM

International Conference on Sustainable Manufacturing, Automation and Robotics Technologies (IC-SMART) (December 15- 16, 2017)

Name (in block letters): -----

Name & Address of the Organization/
Institution/ Industry: -----

E-mail:-----

Ph. -----M: -----

Food (Veg. / Non Veg.): -----

Payment Option of Registration Fee:

Option –I: By Cheque / Bank draft , drawn in favor of CMERI JUBILEE

Option – II: Bank Transfer to CMERI JUBILEE account . Details of the account is as follows:

Name of the Bank: Allahabad Bank

A/C Name: CMERI JUBILEE

A/c No: 20270985953

IFS Code: [ALLA0211764](#)

Branch Name: Durgapur City Centre

Payment Details: Amount Rs. -----

Paid in Cash/DD/ Ch. / Online Transfer -----

-----Date -----

Sign:-----

Date:-----

Note: Delegates/Accompanying Persons will not be regarded as registered until the payment has been lodged in **CMERI JUBILEE's** bank account. [Photocopy of this form may be used for more participants.]

Important Dates

- Submission of Full Paper: Sept. 30, 2017
- Acceptance of Full Paper: Oct. 20, 2017
- Submission of Final Paper: Oct. 31, 2017
- Author's registration: Oct. 31, 2017
- Pre-conf. Workshop Regn.: Nov. 30, 2017
- Delegates Registration: Dec. 10, 2017

Authors are requested to submit full paper online as per the format at www.ic-smart.org or email: icsmart2017@gmail.com

Registration Fee

(A). Two Days International Conference

Category	Indians (INR)	Internationals (USD)
Students	2000	35
R&D and Academia	4000	150
Industry	6000	250

(B). One day Pre-Conference Workshop

(Registration for any one of the workshops)

Category	Indians (INR)	Internationals (USD)
Students	1000	25
R&D and Academia	2000	75
Industry	3000	125

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- Option-II: By Bank /Online Transfer
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A/C Name: CMERI JUBILEE
A/c No: 20270985953
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