

**Joint Conference of ICTACEM 2021,  
APCATS 2021, AJSAE 2021 and AeSI 2021**



**8<sup>th</sup> International Conference on Theoretical, Applied, Computational  
and Experimental Mechanics (ICTACEM'2021) Since 1998**  
&  
**11<sup>th</sup> Asian-Pacific Conference on Aerospace Technology and Science (APCATS'2021)**  
&  
**6<sup>th</sup> Asian Joint Symposium on Aerospace Engineering (AJSAE'2021)**  
&  
**AeSI. Kolkata Chapter National / International Conference (AeSI'2021)**



**December 20 - 22, 2021 (Monday to Wednesday)**  
**Vikramshila Complex, Indian Institute of Technology Kharagpur,**  
**Kharagpur, West Bengal, India. Pin – 721 302**

### **ICTACEM**

The International Conference on Theoretical Applied Computational and Experimental Mechanics is organized every three years by the Department of Aerospace Engineering IIT Kharagpur. The conference is devoted to providing a platform for scientists and engineers to exchange their views on the latest developments in Mechanics since 1998. ICTACEM Conference is aimed at bringing together academicians and researchers working in various disciplines of mechanics to exchange views as well as to share knowledge between people from different parts of the globe. The 8<sup>th</sup> ICTACEM will be held from December 20-22, 2021 at the Indian Institute of Technology, Kharagpur.

### **APCATS**

The APCATS is held every two years aimed at discussing the latest developments in aerospace technology and science. The conference provides a platform for scientists and engineers to discuss state-of-the-art ideas, methods, and results, in order to promote the exchanges and collaborations between different disciplines and nations, especially in Asian-Pacific area.

### **AJSAE**

The AJSAE is held every year and provides an opportunity for scientists and engineers to discuss the state-of-art ideas, methods, and results in aerospace science and technology, and to promote the exchanges and collaborations between different disciplines and nations, especially in Asian area.

### **AeSI**

Aeronautical Society of India (AeSI) was founded on November 17, 1948 by Pandit Jawaharlal Nehru, the first Prime Minister of India who then became the first Chief Patron of the Society. The main motto of AeSI is to promote the advancement and dissemination of knowledge of Aeronautical and Aerospace Science/Technology and also to strive for the elevation of Aeronautical and Aerospace professions. The Kolkata chapter of AeSI organizes a national/international conference every year and is co-organizing the conference with ICTACEM 2021, APCATS 2021 and AJSAE 2021.

## **THEMES**

The conference is focused on current research trends in all disciplines of mechanics including interdisciplinary areas. The topics include (but not limited to):

### **1. Fluid mechanics**

Experimental and Computational Aerodynamics, Experimental and Computational Fluid Mechanics, Seepage Flow, Computational Mechanics, Computational Methods, Shock-Boundary Layer Interactions, Active and Passive Flow Controls, Fluid-structure interaction, High Enthalpy Flows and Hypersonic Aerodynamics, biomechanics, Bio-inspired mechanics, Aeroacoustics, Hydrodynamics, Turbulence, LES *etc.*

### **2. Solid mechanics and Dynamics**

AI and Expert Systems, Classical Mechanics, Composite Materials and Structure, Computational Mechanics, Computational Methods, Damage Mechanics, Fracture Mechanics, Functionally Graded Materials, Fuzzy Logic, Genetic Algorithms and Neural Networks, Modelling and Simulation, Nano mechanics, Nonlinear Mechanics, Optimization, Smart Materials, Structures and Systems, Structural Dynamics, Aeroelasticity, Terramechanics, Uncertainty Quantification *etc.*

### **3. Flight mechanics, Control and Navigation**

Space/Orbital Mechanics, UAV, MAV, AI and Expert Systems, Fuzzy Logic, Genetic Algorithms and Neural Networks, Satellite-Based Navigation Systems, Optimal, Non-linear and Robust control.

### **4. Propulsion and Combustion**

Turbomachinery, Aerodynamics of gas turbine components, Development and Testing of Gas Turbine Systems, Heat transfer, Gas turbine blade cooling, rotor dynamics, Performance Analysis and Advanced Cycles, Droplet and spray combustion, Laser ignition, Combustion spectroscopy, LES of combustion, Alternative fuels, Non-conventional energy, Nano-fuels, Technology Development in Solid/Liquid/Hybrid Rockets, *etc.* Statistical Thermodynamics, Uncertainty Quantification.

## **CALL FOR PAPERS**

Authors are invited to **SUBMIT** extended abstracts (maximum two pages) of their papers **ONLINE** indicating clearly the summary of the aims, methods of analysis, results and conclusions. The official language for the conference is English. The final acceptance of a paper will be based on the review of the extended abstract and will be available as a list of Accepted Papers on the website. Format for the preparation of the **extended abstract** and the **full length paper** are available as separate links on the conference website.

## **NOTE**

- Extended Abstracts should not exceed TWO pages as per the proposed format.
- Full length paper is limited to 10-12 pages as per the proposed format.

## **PROCEEDINGS**

The E-proceedings along with the print copy of the book of abstracts will be published and included in the conference kit for all the registered participants.

## **PUBLICATION**

Selected papers may be considered for publication with an internationally recognized publisher/Reputed Journal/Journals.

## **MODE OF CONFERENCE**

Presentation will be through physical participation at the conference venue. However, the presentation may have to be conducted remotely in case of any exigency. The Registration Fees will be accordingly modified and notified through the website.

## **IMPORTANT DATES**

1. Opening of Extended abstract submission for paper (online): **April 01, 2021**
2. Deadline for Preliminary Registration and Submission of Extended Abstract (online): **June 10, 2021.**
3. Extended Abstract Acceptance Notification: **August 10, 2021.**
4. Final (Full) Paper Submission (online): **September 30, 2021.**
5. Registration Deadline (payment of registration fees): **October 31, 2021.**
6. Conference dates: **December 20-22, 2021.**

## **ACCOMMODATION**

Accommodation will be arranged in the guest houses on request located within the Institute campus on single/sharing basis based on the availability.

**Note: No accommodation is guaranteed after the registration deadline of October 31, 2021.**

### **I.I.T. Kharagpur Campus**

Kharagpur - a town in eastern India, famous until 1950 as home to the longest railway platform in the world - became the nursery where the seed of the IIT system was planted in 1951. IIT Kharagpur started its journey in the old Hijli Detention Camp once where some of the country's great freedom fighters were held by the colonial government. Spurred by the success of IIT Kharagpur, four younger IITs came up around the country in the two following decades, and from these five came thousands of IITians, the brand ambassadors of modern India. It was the success of this one institution at Kharagpur that wrote India's technological odyssey.

The Institute takes pride in its relentless effort to provide the best platform for both education as well as research in the areas of science and technology, infrastructure design, entrepreneurship, law, management, and medical science and technology. IIT Kharagpur is not just the place to study technology, it is the place where students are taught to dream about the future of technology, be innovative and to strive to make the world a better place.

## **REGISTRATION FEES**

The registration fees for the Conference are as follows:

<b>Delegates from SAARC Countries:</b>		
	<b>Before September 30, 2021</b>	<b>After September 30, 2021</b>
Educational Institutions	Rs. 8,000	Rs. 10,000

Research Organisations/Industries	Rs. 10,000	Rs. 12,000
Students	Rs. 2,000	Rs. 2,500
<b>Delegates from Other Countries:</b>		
Educational/Research Institutes	US\$ 450	US\$ 500
Students	US\$ 100	US\$ 125

The fee will cover a copy of the conference proceedings, inaugural reception, breakfast, lunches and tea/coffee services during session breaks. Registered participants will be invited to the conference banquet and other evening programs.

#### **MODE OF PAYMENT**

Kindly use the link <https://erp.iitkgp.ac.in/CEP/courses.htm>

Click on How to Pay?

Then select program id:

IIT/CEP/CON/CON/2020-2021/AE/110

Once the manuscript is accepted for oral/poster presentation in the conference, the author will receive an email for making fee payment from the ERP system of IIT Kharagpur.

#### **SECRETARIAT OF JOINT CONFERENCE OF ICTACEM, APCATS, AJSAE AND AESI, KOLKATA**

Prof. V. K. Tewari, Patron, Director, IIT Kharagpur

Mr. A. S. Kiran Kumar, Patron, President, AeSI, New Delhi, Ex-Chairman, ISRO

Prof. M. Sinha, Mentor, HoD, Department of Aerospace Engineering, IIT Kharagpur

Gp. Capt. T. K. Ray, Mentor, Chairman, AeSI, Kolkata

Prof. K. P. Sinhamahapatra, Conference Chair, Department of Aerospace Engineering, IIT Kharagpur, [ictacem@aero.iitkgp.ac.in](mailto:ictacem@aero.iitkgp.ac.in)

Prof. C. D. Kong, Conference Chair, International Visiting Professor, Department of Aerospace Engineering, IIT Kharagpur, [cdgong@aero.iitkgp.ac.in](mailto:cdgong@aero.iitkgp.ac.in)

Prof. B. N. Singh, Conference Vice-Chair, Department of Aerospace Engineering, IIT Kharagpur, [ictacem@aero.iitkgp.ac.in](mailto:ictacem@aero.iitkgp.ac.in)

Prof. Amar Nath Mallick, EC Member, AeSI, Kolkata Chapter & Professor, Department of Mechanical Engineering, NIT, Durgapur, [amarnath.mullick@me.nitdgp.ac.in](mailto:amarnath.mullick@me.nitdgp.ac.in)

### **INTERNATIONAL COMMITTEE OF JOINT CONFERENCE OF ICTACEM, APCATS, AJSAAE AND AeSI, KOLKATA**

Prof. Xue-Ying Deng, Honorary Chair, Beihang University, China

Prof. C. D. Kong, Honorary Chair, Chosun University, Korea

Dr. C. Y. Hwang, Honorary Co-Chair, Korea Aerospace Research Institute, Korea

Prof. S. S. Lee, Honorary Co-Chair, Gyeongsang National University, Korea

Prof. J. H. Hwang, Honorary Co-Chair, Korea Aerospace University, Korea

Prof. Yankui Wang, Honorary Co-Chair, Beihang University, China

Prof. Hai Huang, Honorary Co-Chair, Beihang University, China

Prof. Guowei Yang, Honorary Co-Chair, ARMC, CAS, China

Prof. Nobuhiko Yamasaki, Honorary Co-Chair, Kyushu University, Japan

Prof. Tai-Yan Kam, Honorary Co-Chair, National Chiao Tung University, Taiwan

Prof. Mahir Dursun, Honorary Co-Chair, Gazi University, Turkey

### **COUNTRY REPRESENTATIVES**

Prof. D. K. Maiti, IIT Kharagpur, [dkmaiti@aero.iitkgp.ac.in](mailto:dkmaiti@aero.iitkgp.ac.in)

Dr. C. Y. Hwang, Korea Aerospace Research Institute, [cyhwang@kari.re.kr](mailto:cyhwang@kari.re.kr)

Prof. Shenyan Chen, Beihang University, [chenshenyan@buaa.edu.cn](mailto:chenshenyan@buaa.edu.cn)

Prof. Nobuhiko Yamasaki, Kyushu University, [yamasaki@aero.kyushu-u.ac.jp](mailto:yamasaki@aero.kyushu-u.ac.jp)

Prof. J. L. Tsai, National Chiao Tung University, [jialin@mail.nctu.edu.tw](mailto:jialin@mail.nctu.edu.tw)

Prof. Mahir Dursun, Gazi University, [mdursun@gazi.edu.tr](mailto:mdursun@gazi.edu.tr)

**VENUE:** Vikramshila Complex, IIT Kharagpur, West Bengal, India

## **ICTACEM 2021 LOCAL ORGANIZING COMMITTEE**

### **ICTACEM Secretariat**

Patron	Prof. V K Tewari, Director, IIT Kharagpur
Mentor	Prof. M Sinha, Head of the Department, Aerospace Engineering
Chairman	Prof. K P Sinhamahapatra <a href="mailto:ictacem@aero.iitkgp.ac.in">ictacem@aero.iitkgp.ac.in</a>
Vice-Chairman	Prof. B N Singh <a href="mailto:ictacem@aero.iitkgp.ac.in">ictacem@aero.iitkgp.ac.in</a>
Secretary Fluid Mechanics	Prof. A Roy
Joint Secretary Fluid Mechanics	Prof. S M Dash
Secretary Flight Mechanics, Control and Navigation	Prof. M K Laha
Joint Secretary Flight Mechanics, Control and Navigation	Prof. S Bhattacharyya
Secretary Propulsion & Combustion	Prof. Amardip Ghosh
Joint Secretary Propulsion & Combustion	Prof. S Karmakar, Prof. C S Mistry
Secretary Solid Mechanics and Dynamics	Prof. B N Singh



Joint Secretary Solid Mechanics and Dynamics	Prof. M R Sunny
Secretary International relations & Sponsorship	Prof. D K Maiti
Joint Secretary International relations & Sponsorship	Prof. P Jana
Secretary Media & publication	Prof. S Saha, Prof S Hota
Secretary Finance	Prof. R Joarder, Prof. A Prakash

#### **TECHNICAL COMMITTEE**

Area	Committee members
Aerodynamics	Prof. Somnath Ghosh, Prof. Mrinal Kaushik
Flight Mechanics	Prof. N K Payada, Prof S Bhattacharyya
Propulsion	Prof. S Karmakar, Prof. C S Mistry, Prof. Amardip Ghosh
Structures	Prof. Anup Ghosh, Prof. Mira Mitra

#### **ACCOMMODATION COMMITTEE**

Prof. S M Dash, Prof. S C Pradhan and Mr. S Mukherjee

#### **TRANSPORTATION COMMITTEE**

Prof. Amardip Ghosh and Mr G. Karmakar

#### **FOOD COMMITTEE**

Prof. R. Joarder, Prof. M. Kaushik and Mr. S. Sikdar.

#### **RECEPTION DESK**

Prof. A. Prakash, and Mr. B Maiti

**COMPUTER, AUDIO VISUALS**

Mr. R. Nandi

**OFFICE AND POSTAL WORK AND REIMBURSEMENTS**

Mr. S. Santra and Mr. U. Sarkar.

**POSTAL / EMAIL COMMUNICATION**

Chairman, ICTACEM 2021

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