Call for Paper
ESMOC 2024 – 4th Energy System Modeling and Optimization Conference
NIT Durgapur, India, December 9-11, 2024
(http://www.esmoc2013.in/)

Dear All,

Greetings from ESMOC 2024- 4th Energy System Modeling and Modeling Conference!

ESMOC creates a forum for interactions on all energy issues. The first ESMOC (ESMOC 2013) was held at NIT Durgapur in December 9-11, 2013, 2nd ESMOC (ESMOC 2017) at NIT Durgapur in December 11-13, 2017 and 3rd ESMOC (ESMOC 2021) December 5-7, 2021.This international meeting mainly focuses on the modeling and experiments related to nuclear energy, petroleum energy and thermal energy. We welcome both theoretical and experimental works in the following areas:

TRACK-1: Theoretical and Experimental Fluid Mechanics and Heat Transfer
TRACK-2: Petroleum Exploration, Petroleum Refining and Petrochemicals
TRACK-3: Computational Fluid Dynamics & Heat Transfer
TRACK-4: Thermal Science & Engineering
TRACK-5: Energy Materials
TRACK-6: Multiphase Flow
TRACK-7: Nuclear Science and Engineering

Attached please find the call for papers (CFP) for ESMOC 2024 inviting the abstract for plenary sessions, keynote sessions and contributed sessions. We request you to inform your group about ESMOC 2024.

We hope, ESMOC will achieve another successful milestone on its journey with the contributions from you.

Yours sincerely,
ESMOC 2024- 4th Energy System Modeling and Modeling Conference

ESMOC 2024

4th Energy System Modeling and Optimization Conference

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http://www.esmoc2013.in/

National Institute of Technology Durgapur

Mahatma Gandhi Avenue
Durgapur, West Bengal - 713209, India
www.nitdgp.ac.in

Conference Committees

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Technical Programs

The meeting invites the paper for plenary sessions, keynote sessions and contributed sessions in the following areas:

Track Names/Topics for deliberations

Track ID	Track Names/Topics for deliberations
TRACK-1	**Theoretical and Experimental Fluid Mechanics and Heat Transfer** • New theories and experimental methods in single-phase fluid mechanics and heat transfer • Mathematical methods for close-form solutions in single-phase fluid mechanics and heat transfer
TRACK-2	**Petroleum Exploration, Petroleum Refining and Petrochemicals** • Reservoir modeling; permeability and other upstream modelling issues • Petroleum processing; bulk properties and group composition for crude and petroleum products • Micro-kinetic modeling and Ab-initio modeling in refining processes; catalytic processes/scale-up; Monte-carlo simulation of catalytic surfaces • Modeling of thermal processes and multistage separations in hydrocarbon industries • All large-scale simulation/optimization issues in petroleum industries • CFD modeling of the reactors and other equipment in hydrocarbon industries
TRACK-3	**Computational Fluid Dynamics & Heat Transfer** • Combustion and other reactive flows • Direct numerical simulation • Heat Transfer with phase changes • Microgravity applications

	• Non-Newtonian fluid-particle mechanics • Numerical methods • Large eddy simulation • Turbulence flow computation
TRACK-4	**Thermal Science & Engineering** • Convective and Radiative Heat Transfer • Combined heat, power and advanced cycles; • Heat exchangers(compact and advanced designs) • Heat pumps and refrigeration plant; heat pipes; • Heat transfer enhancement • Energy Processes in Steel & Allied industries • Energy processes in Coal & Allied industries • Renewable energies • Phase change heat transfer in microchannels • Thermal and hydrodynamic stability • Thermal stress analysis
TRACK-5	**Energy Materials** • Soft interfaces and thin films • Nanomaterials**,** nanocomposites, ceramics, polymers, colloids • Optics, lasers, sensors, light emitting materials • Solar cells, biological materials, • Semiconductors, superconductors, batteries, superconductors • Magnetic materials**,** metamaterials • Piezoelectric materials, water-splitting
TRACK-6	**Multiphase Flow** • Two-phase flow, multiphase flow and complex flow • Gas-solid-liquid flow and contactors • Colloidal and suspension • Cavitation phenomena • Computational methods • Experimental methods • Fluid-structure interaction • Environmental multiphase flow • Droplet flow • Modeling methods
TRACK-7	**Nuclear Science and Engineering** • Design of Nuclear Reactors • Reactor Safety, Neutron kinetics and reactor control issues • Computational & Experimental Thermal Hydraulics • Structural Mechanics • Nuclear Materials • Nuclear Physics & Reactor Theory • Radiation Interaction and Shielding • Laser Velocimetry and Imaging Techniques • CFD Model and Benchmarking in Subchannel Systems/Rod Bundle CHF

	• Post Accident Rod Bundle Thermal- Hydraulic Behaviors • CFD Modeling and Validation for Multi-phase Flows in Nuclear Reactor Systems • Progress of Indian nuclear reactor technologies • Pressurized Heavy Water Reactor (PHWR) or CANDU-type reactors, Light Water Reactors (PWR and BWR), Liquid Metal or Sodium cooled Fast Reactors. • Severe Accident Analysis of Spent Fuel Storage Pool • Hydrogen generation, dispersion and mitigation during severe accidents

Paper Submission

Authors are gently requested to write their works with the text-matches of maximum 20% with the source contents. The paper will contain an abstract of 250-450 words (body). The abstract will be one paragraph. No equations, symbols, or reference numbers will be there in the abstract. Each paper must be accompanied by a statement that it has not been published elsewhere and that it has not been submitted simultaneously for publication elsewhere. All papers of 4-6 pages must be typed single-spaced in a single column with 10-point Time new roman font size, and with margins of at least 2.54cm all. Numeric citations of the literatures with their descriptions are given below. Submission files (docx/pdf) can be uploaded in the online submission system (https://cmt3.research.microsoft.com/ESMOC2024) on signing up to Microsoft CMT. For any queries, please email to esmoc.submission@gmail.com.

[1] Energy, A. B., and Education, C. D., An introduction to Energy System Modeling and Optimization, 3rd ed., pp. 10–25, publisher name, place, year. (book)
[2] Energy, A. B., Energy Education, in Handbook of Energy System Modeling and Optimization, ed. C. D. Education, pp. 1–6, publisher name, place, year. (chapter in a book)
[3] Energy, A. B., and Education, C. D., Article Title, Journal Name, vol. 51, no. 1, pp. 1–6, year. (Article in Journal)
[4] Energy, A. B., and Education, C. D., 2012 Energy Survey, Report ID, Month Year. (report)
[5] Energy, A. B., Energy System Modeling, Proc. conference name, place, vol. 342, pp. 19–26, 1997. (proceedings)
[6] Energy, A. B., Study on Energy System Modeling. Ph.D. thesis. Institute / University Name, Country, Year. (thesis)

Publication

The abstracts of the work to be presented in ESMOC 2024 will be published in the printed volume of abstract. The proceedings of ESMOC 2024 of the full papers presented will be by will be brought out as well. We are in discussion with the international publishers for this.

Registration Fees

Indian Participants	On/before September 19, 2024	After September 19, 2024
Students & Scholars	INR 4500	INR 5500
Full Delegates	INR 6500	INR 7500

Foreign Participants	On/before September 19, 2024	After September 19, 2024
Students & Scholars	USD 349	USD 449
Full delegates	USD 549	USD 649

The fees include conference proceedings, working lunch, tea and the conference dinner. The details on the registration are in the website. The participants are requested to book their accommodation. Pickup-and-drop arrangement will be made for the participants to be staying outside the NITD campus. The accommodations in guest houses or hotels (all of them are within about 20-min walk to the NITD campus) are available at a reasonable price. The detail is given in the website.

Important dates

All submissions end: **September 16, 2024**
Notification to authors: **August 19, 2024**
Final submission and early-bird Registration: **September 16, 2024**
Conference program will be available: **November 8, 2024**
Conference starts: **December 9-11, 2024**

City of Durgapur

It is a dream child of Dr. Bidhan Chandra Roy, Second Chief Minister of West Bengal. The industrial township was designed by Joseph Allen Stein and Benjamin Polk. Durgapur is connected with the major cities worldwide by flights at KNI airport (to be International Soon), Durgapur and NSCB international airport, Kolkata. It is a about three-hour journey from Kolkata by bus, taxi and train to reach the city of Durgapur. The Institute is located about 180 Km north-west of Kolkata on the Howrah-Delhi Main Railway-Route and overlooking the National Highway No. 2(the great Grand- Trunk Road). At Durgapur station and City Centre, taxis are available for 24 hours. Durgapur station and City Centre are the big bus terminuses for traveling around the city of Durgapur. Buses are available upto 22:00. The Steel City of Durgapur, West Bengal, India is growing very fast to "become one of the mega cities of eastern India". With a strong base on Durgapur Steel Plant and Alloy Steel Plant, many large and small industries have come up in the industrial hub of Durgapur-DPL, DTPS, NTPC, DVC, Durgapur Cements, DCL, Graphite India Ltd, PCBL, Ultratech Cement Ltd., ALSTOM Projects India Ltd, and many more. Durgapur has many

good centers for education, training and research - National Institute of Technology (NIT) Durgapur, Central Mechanical Engineering Research Institute (CMERI), National Power Training Institute (NPTI), BCET, DIATM, Dr. B.C. Roy Engineering College, Durgapur Government College, Durgapur Women College, Michael Madhusudan Memorial College, DAV Model School, Hem Sheela Model School, St. Xaviers School, Carmel School, etc. Many more have been newly developed and are coming up. The healthcare facilities in Durgapur are also rapidly growing and include Govt. Hospitals and privately-managed hospitals. Rich with cultural activities, Durgapur provides good and entertaining local hospitality for the residents and the visitors.

National Institute of Technology Durgapur

National Institute of Technology, Durgapur (formerly Regional Engineering College, Durgapur), was established by an Act of Parliament in 1960 is a fully-funded premier Technological Institution under the Ministry of Human Resource Development (MHRD), Government of India and is administered by an autonomous Board of Governors. The Institute awards B. Tech., MCA, M. Sc., MBA, M. Tech. and Ph.D. degrees to the students. The Institute imparts education in the disciplines of Chemical Engineering, Civil Engineering, Computer Science and Engineering, Electrical Engineering, Electronics and Communication Engineering, Mechanical Engineering, Metallurgical and Materials Engineering, Information Technology, Biotechnology, Physics, Chemistry, Mathematics, Environmental science, Materials Science and Management Studies. As decided by MHRD, Government of India, the procedure for selection of candidates for admission to the B. Tech./ M. Tech. in NIT Durgapur and in other NITs is on the basis of State Rank/ All India Rank (AIR) of AIEEE conducted by CBSE, New Delhi, and the same is executed through counseling by Central Counseling Board, AIEEE under guidance from MHRD, GOI as per schedule notified by CCB. In addition to the normal intake, a few seats are reserved for Foreign Students who are nominated by the Ministry of External Affairs, Government of India and the Indian Council for Cultural Relations, Government of India.

The campus is spread across 187 acres of land comprising of various Academic buildings, Laboratories, Hostels, Residential quarters of all employees, Guest houses, Banks, Medical unit, Playgrounds, Gardens and Post office. It has state of the art infrastructure with modern amenities. The campus is also physically-handicapped friendly. Among the buildings, it has lush green gardens and huge trees. The campus of NIT Durgapur is spread over a vast area of 187 Acre.

The Institute is located about 160 KMs north-west of Kolkata on the Howrah-Delhi main railway route and overlooking the National Highway No. 2(the great Grand- Trunk Road). The Institute spreads over an area of 187 acres of land. It is fully residential and co-educational. At present about 2500 boys and 500 girls reside in seven boys' hostels and two girls' hostels. The annual undergraduate intake is more than 1000 students.

Technical Sponsors

American Institute of Chemical Engineers
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Centre Européen de Recherche et de Formation Avancée en Calcul Scientifique

Indian National Science Academy
Indian Institute of Chemical Engineers
Institution of Engineers (India)
Institute of Physics

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