



Call for Papers – ESMOC 2017

Call for Paper: ESMOC 2017 - 2nd Energy System Modeling and Optimization Conference

Dear All,

Greetings from ESMOC 2017 - 2nd Energy System Modeling and Optimization 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. This meeting mainly focuses on the modeling, optimization and control issues related to coal, geothermal energy, nuclear energy, petroleum exploration, petroleum refining, petrochemicals, renewable & clean energy, steel & allied industries and thermal energy. We welcome both theoretical and experimental works in the following areas:

- TRACK-1: Advanced Control of Energy Systems
- TRACK-2: Computational Fluid Dynamics & Heat Transfer
- TRACK-3: Energy processes in Steel & Allied industries
- TRACK-4: Energy processes in Coal & Allied industries
- TRACK-5: Geothermal Energy
- TRACK-6: Nonlinear Dynamics & Chaos in Energy Systems
- TRACK-7: Nuclear Science & Engineering
- TRACK-8: Optimization Techniques for Energy Systems
- TRACK-9: Petroleum Exploration, Petroleum Refining and Petrochemicals
- TRACK-10: Renewable & Clean Energy
- TRACK-11: Thermal Science & Engineering

Attached please find the call for papers (CFP) for ESMOC 2017 inviting the articles for plenary sessions, keynote sessions and contributed sessions. We request you to inform your group about ESMOC 2017.

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

Yours sincerely,
Program Chairs, ESMOC 2017

Energy System Modeling
& Optimization Conference
(ESMOC 2013)



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ESMOC 2017

2nd Energy System Modeling and Optimization Conference

December 11-13, 2017

<http://www.nitdgp.ac.in/esmoc2017-web/esmocMain.htm>



Organizer

National Institute of Technology Durgapur

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





Conference Committees

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Swapan Paruya, NIT Durgapur, India, Convener



Energy System Modeling
& Optimization Conference
(ESMOC 2013)

Student Organizing Committee

PhD/M.Tech. /B. Tech Students, Chemical Engineering, NIT Durgapur

Technical Programs

ESMOC 2017 is the second conference at international level for creating a forum for interactions on all energy issues. The first ESMOC (ESMOC 2013) was held at NIT Durgapur in December 9-11, 2013. Keeping in mind several forums on energy made in recent past by other organizers, this meeting mainly focuses on the modeling, optimization and control issues related to coal, geothermal energy, nuclear energy, petroleum exploration, petroleum refining, petrochemicals, renewable & clean energy, steel & allied industries and thermal energy. It also proposes for the deliberations of both theoretical and experimental works.

Keywords: Boiling; Bubbles; Cavitations; Chemical Reactors, Chaos & Complexity; Coal; Control laws; Condensation; Combustions; Computational techniques; Drops; Energy; Flow control; Fluid dynamics; Flow visualization; Heat transfer; Interfacial instability; Micro and Nano processes; Optimization; Multiphase flow; Measurement techniques; Modeling; Metallurgical Processes; Nuclear Reactors; Optimizations; Petrochemicals; Petroleum; Porous medium; Power; Refineries; Renewables; Scale-up; Simulations; Stability; Steel; Thermal processes; Transport processes.



The theme of the Conference: **To be announced**

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

Technical Tracks

Track ID	Track Names/Track Chairs/Topics for deliberations/Contact persons for more information
TRACK-1	<p>Advanced Control of Energy Systems</p> <p>Babatunde A. Ogunnaike, University of Delaware, USA Iftekhar A. Karimi, National University of Singapore, SINGAPORE Sachin Patwardhan, Indian Institute of Technology Bombay, INDIA Vijnay Kariwala, ABB Ltd., INDIA</p> <ul style="list-style-type: none"> • Process Modeling and Identification • Model-based Control • Optimal control laws • Process and Control Monitoring <p>T. K. Radhakrishnan, NIT Trichy, India (radha@nitt.edu) Swapan Paruya, NIT Durgapur, India (swapanparuya@rediffmail.com)</p>
TRACK-2	<p>Computational Fluid Dynamics & Heat Transfer</p> <p>Gautam Biswas, Indian Institute of Technology Guwahati, INDIA Krishnaswamy Nandakumar, Louisiana State University, USA R. P. Chhabra, Indian Institute of Technology Kanpur, INDIA</p> <ul style="list-style-type: none"> • Computational fluid dynamics • Heat Transfer with phase changes • Multiphase flows • Non-Newtonian fluid-particle mechanics • Turbulence <p>Debasis Chakraborty, DAE-DRDL, India (debasis_drld@yahoo.co.in) Swapan Paruya, NIT Durgapur, India (swapanparuya@rediffmail.com)</p>
TRACK-3	<p>Energy Processes in Steel & Allied industries</p> <p>Sanjay Chandra, Tata Steel Ltd. (Research & Development), INDIA</p> <ul style="list-style-type: none"> • Exergy analysis for optimization of industrial energy systems • Process integration in an integrated steel plant: Combined Exergy-energy analysis • Model based optimization of sustainability indicators (viz. energy efficiency and greenhouse efficiency) in integrated steelmaking • Modeling of thermal energy transport in continuous casting mould • Green house gas control under industrial steel plant environment • Optimization of coal rate and carbon dioxide emissions in BF iron making processes • CO₂ abatement in Iron & Steel production by process optimization • Environmental challenges in metal industry with special reference to CO₂ emissions -Iron & Steel <p>Suvankar Ganguly, Tata Steel Ltd. (R&D) (suvankarganguly@tatasteel.com)</p>



<p>TRACK-4</p>	<p>Energy processes in Coal & Allied industries</p> <p>Prabir Basu, Dalhousi University, CANADA Ranjit K. Saha, INDIA</p> <ul style="list-style-type: none"> • Advanced power generation technologies from coal • CFBC and carbon capture technologies • Clean Coal Technology • Coal cleaning technologies • Coal mining and processing • Pyrolysis, combustion, gasification of coal
	<p>Sujit Karmakar, NIT Durgapur, India (sujitkarmakar@yahoo.com)</p>
<p>TRACK-5</p>	<p>Geothermal Energy</p> <p>Bikash Sinha, DAE-Variable Energy Cyclotron Centre, INDIA</p> <ul style="list-style-type: none"> • Geothermal Power Generation • Geothermal Heat Production • Geothermal Heat Pumps
	<p>Swapan Paruya, NIT Durgapur, India (swapanparuya@rediffmail.com)</p>
<p>TRACK-6</p>	<p>Nonlinear Dynamics & Chaos in Energy Systems</p> <p>Kai Sundmacher, Max-Planck-Institute for Dynamics of Complex Technical Systems, GERMANY Ranga Narayanan, University of Florida, USA Subramaniam Pushpavanam, Indian Institute of Technology Madras, INDIA</p> <ul style="list-style-type: none"> • Convective Instabilities • Pattern formation in extended dissipative system • Nonlinear phenomena with interfacial and reaction systems
	<p>Pinaki Pal, NIT Durgapur, India (pinaki.math@gmail.com)</p>
<p>TRACK-7</p>	<p>Nuclear Science & Engineering</p> <p>Chin Pan, National Tsing Hua University, TAIWAN Kannan N. Iyer, Indian Institute of Technology Bombay, INDIA Yassin A. Hassan, Texas A&M University, USA</p> <ul style="list-style-type: none"> • Reactor Safety, Neutron kinetics and reactor control issues • Computational & Experimental Thermal Hydraulics • Laser Velocimetry and Imaging Techniques • CFD Model and Benchmarking in Subchannel Systems/Rod Bundle CHF • Post Accident Rod Bundle Thermal- Hydraulic Behaviors
	<ul style="list-style-type: none"> • 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 <p>Arun Nayak, DAE-BARC, India (arunths@barc.gov.in) Swapan Paruya, NIT Durgapur, India (swapanparuya@rediffmail.com)</p>



<p>TRACK-8</p>	<p>Optimization Techniques for Energy Systems</p> <p>Ali Elkamel, University of Waterloo, CANADA Santosh K. Gupta, University of Petroleum & Energy Study, INDIA Singiresu S. Rao, University of Miami, USA Wolfgang Marquardt, RWTH Aachen, GERMANY</p> <ul style="list-style-type: none"> • Evolutionary techniques • Mathematical programming techniques • Meta-heuristics optimization techniques • Nonlinear programming techniques • Optimization of heat exchanger networks • Process planning and scheduling methods • Process system engineering • Real-time optimizations • Soft computing techniques • Uncertainties in optimization • Designing Low Carbon Energy Systems <p>Swapan Paruya, NIT Durgapur, India (swapanparuya@rediffmail.com)</p>
<p>TRACK-9</p>	<p>Petroleum Exploration, Petroleum Refining and Petrochemicals</p> <p>Deepak Kunzru, Ahmedabad University, INDIA Guy Marin, University of Ghent, BELGIUM M. O. Garg, Council of Scientific and Industrial Research (CSIR), INDIA</p> <ul style="list-style-type: none"> • 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 <p>Asit Das, Reliance Industries Ltd. (Refining R&D), India (asit.das@ril.com) Mrinal K. Madal, NIT Durgapur-GHE, India (mrinalmandal@gmail.com)</p>
<p>TRACK-10</p>	<p>Renewable & Clean Energy</p> <p>AB Pandit, Institute of Chemical Technology Mumbai, INDIA AKM Sadrul Islam, Islamic University of Technology, BANGLADESH P. Ray, University of Calcutta, INDIA Suddhasatwa Basu, Indian Institute of Technology Delhi, INDIA</p> <ul style="list-style-type: none"> • Tidal energy • Wind energy Biomass, biofuel and bioenergy/energy from waste • Solar energy • Hydro-electric energy • Hydrogen generation • Fuel cell <p>Gopinath Halder, NIT Durgapur, India (gopinath_haldar@yahoo.co.in) Tamal Mandal, NIT Durgapur, India (tamal_mandal@yahoo.com)</p>



TRACK-11	Thermal Science & Engineering Afshin J. Ghajar, Oklahoma State University, USA Vijay K. Dhir, University of California Los Angeles, USA <ul style="list-style-type: none">• Phase change heat transfer in microchannels• Thermal and hydrodynamic stability• Convective and Radiative Heat Transfer• Heat exchangers(compact and advanced designs)• Heat pumps and refrigeration plant; heat pipes;• Combined heat and power and advanced cycles;• Heat transfer enhancement Chandan Guha, Jadavpur University, India (cguha2003@yahoo.com) Mohammed Kamil, Aligarh Muslim University, India (sm_kamil@rediffmail.com)
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Manuscript Preparation and Submission

Manuscript files (*.doc / *.docx) should be electronically sent to esmoc2017@mail1.nitdgp.ac.in and esmoc.submission@gmail.com. Each manuscript 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 manuscripts must be typed single-spaced in a single column with 12-point Times new roman font size, and with margins of at least 2.54cm all around within four (4) pages. All pages of the manuscript must be numbered. The manuscript should contain an abstract of 100 words. The abstract should be only one paragraph. Do not include equations, symbols, or reference numbers in the abstract. The introduction should explain the purpose of the study, cite relevant work, and describe objectives. The body presents the details of the study. It may be broken down into several sections, which should be identified by descriptive, unnumbered headings (do not use section or sub-section numbers). Appropriate figures and tables should be used to amplify the discussion. Point out the significance of the work, its limitations and advantages, applications of the results, and further work that should be done. A separate nomenclature section after the conclusions should list the symbols used in the manuscript, their definitions, and their SI units. The nomenclature list should be in alphabetical order with Greek symbols following the alphabetical listing. Subscripts and superscripts should follow Greek symbols and be identified with a heading. Number each equation consecutively with single Arabic numerals with the number enclosed inside prentices. All symbols in equations must be clear. Use only convectional symbols. Any footnotes of acknowledgement or author identification will appear on the opening page of the paper.

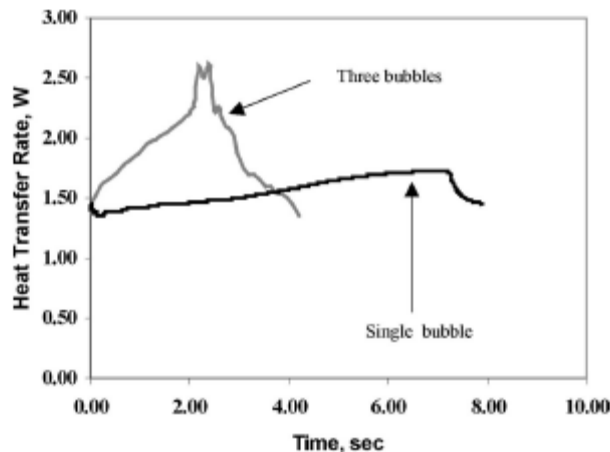


Figure 18 Comparison of heat transfer rates for single and three-bubble merger placed at the corners of an equilateral triangle with spacing = 1.25 mm (fluid: saturated water at $g = 1.0 g_e$, $\Delta T_w = 10 K$).

Each figure should be 300 dpi or higher and its caption should be with 12-point Times new roman. Table caption should also be with 12-point Times new roman. Data should be reported in SI units. Use standard symbols whenever possible. For each author, include a photograph and a brief biographical sketch and place it at the end of the manuscript. References are cited in the text in numerical sequence according to their order of appearance. The in text citations are indicated by the author(s)- number method is also



Call for Papers – ESMOC 2017

acceptable, e.g., Sinha [6], for two authors, Kulkarni and Sinha [3], and for multiple authors, Kulkarni et al. [5]. The references are listed in numerical order in a separate section after the nomenclature, styled as follows:

[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)

Publications

The abstracts of the work to be presented in ESMOC 2017 will be published in the printed volume of abstract. A CD-ROM of the presented papers will be brought out as well. **Some selected papers from ESMOC 2017 will appear in the special issues of reputed journals.**

Registration Fees

Indian Participants	On/before September 19, 2017, INR	After September 19, 2017
Students & Scholars	INR 5000	INR 6000
Full Delegates	INR 10000	INR 12000

Foreign Participants	On/before September 19, 2017	After September 19, 2017
Students & Scholars	USD 300	USD 350
Full delegates	USD 500	USD 550

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. Details will be given in the website.

Important dates

All submissions end: **June 19, 2017.**

Notification to authors: **August 22, 2017**

Final submission and early-bird Registration: **September 19, 2017**

Conference program will be available: **November 14, 2017**

Conference starts: **December 11-13, 2017**

City of Durgapur

Durgapur is linked with major cities worldwide by flights at Netaji Subhash Chandra Bose 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 city 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), CMERI, National Power Training Institute (NPTI), BCET, DIATM, Dr. B.C. Roy Engineering College, Durgapur Government College, Durgapur Women College, Micheal Madhusudan Memorial College, DAV Model School, Hem Sheela Model School, St. Xaviers School, Carmel School, etc. Many more have newly developed and are coming up. The healthcare facilities in Durgapur are also rapidly growing and include Govt. Hospitals, The Mission Hospital, DSP Main Hospital, Vivekananda Hospital, ESI Hospital, Disha Eye Care, etc. Rich with cultural activities, Durgapur provides good and entertaining local hospitalities for the residents and the visitors.



Call for Papers – ESMOC 2017

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.

Correspondence

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