

ABSTRACTS AND PAPERS

Academia authors intending to present Research Papers must submit an abstract of 250 words by email (ncrac2022@gmail.com). Upon acceptance of the abstract, authors are required to send the full paper in the prescribed format, which will be communicated later. All papers will be reviewed to ensure high standards. Authors are required to submit the revised manuscript in the prescribed format addressing all the review comments to the Technical Committee for final acceptance.

PAPERS FROM INDUSTRY PERSONNEL/ CONSULTANTS

Industry personnel and consultants in HVAC&R field can submit papers in the prescribed format by email (ncrac2022@gmail.com). All such papers will be peer reviewed by a panel comprising of experts from both Academia and Industry. Authors are required to submit the revised manuscript in the prescribed format addressing all the review comments to the Technical Committee for final acceptance. Separate sessions will be scheduled for presentation of these papers. Presentations comprising of field experience, case studies, new developments/trends, etc. are welcomed in this session.

TOPICS

The conference will cover all significant areas of Refrigeration and Air conditioning, including:

- Energy efficiency and cold/heat recovery
- Novel/alternate ecofriendly RAC systems
- Natural/new refrigerants and mixtures
- Refrigerated cold chain, transport and cold stores
- Food cold storage and refrigerated transport
- Sorption heating and cooling systems
- District heating and cooling
- Desiccant and evaporative cooling
- Polygeneration
- Indoor air quality and Industrial ventilation
- Green buildings
- Modern innovations in HVAC systems
- Low temperature applications
- Building services and automations
- Materials for energy conversion systems
- Thermodynamic cycles
- Thermal comfort and comfort standards
- Thermal energy storage
- Materials and HMT in HVAC&R

IMPORTANT DATES

Short abstracts (250 words) : **30th July 2021**
Abstract acceptance : **30th Jul 2021**
Full paper submission : **30th Sep.2021**
Revised paper submission : **7th Jan 2022**
Conference dates : **24-26th Feb 2022**

REGISTRATION FEE

The normal registration fee per delegate is Rs. 6,000/- and the registration fee for student authors from academic institutes and research labs is Rs. 4,000/-. The registration fee for industry participants is Rs. 10,000/-. Registration fee for overseas delegate and student author are \$250 and \$150 respectively. The details of registration procedure will be communicated in the second announcement.

SPONSORSHIP AND ADVERTISEMENT

In this edition of NCRAC 2022, sponsors are given the opportunity to hold product presentations, display their products, posters and catalogues, while distributing their brochures. The printed proceedings of the conference will contain plenary, keynote and invited papers, abstracts of contributed papers along with fielded advertisements. The details of sponsorship and advertisement will be updated in the second announcement.

VENUE AND ACCOMMODATION

Conference will be in hybrid mode. The details will be updated in the month of December 2021.

PUBLICATION

All selected papers will be considered for publication in reputed SCI and Scopus indexed Journals. Details will be updated soon.

ADDRESS FOR CORRESPONDENCE

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First Announcement and Call for Papers

**7th National and
1st International Conference**
on
Refrigeration and Air Conditioning
NCRAC 2022

24-26th February 2022

*Theme: Energy Efficient and Environment
Friendly HVAC&R Systems*

Organized by



Indian Institute of Technology Guwahati

&



Indian Institute of Technology Tirupati

In association with

**Indian Society of Heating Refrigerating and
Air Conditioning Engineers (ISHRAE)**
Guwahati Sub-Chapter

Supported by



OBJECTIVES

The aspirations and requirements of humans are ever growing, along with technological advancements. Simultaneously, there is the primary concern of the actions of humankind on the environment and the impact of climate change. To address these demands of humankind while balancing the impact on the environment, advancements and innovations are of paramount necessity in the field of Refrigeration and Air Conditioning (RAC). The applications of RAC go well beyond the requirements of human comfort. It addresses the essential functioning of underground tunnels to the far reaches of space stations and everything in between. The innovations in the field of cold chain industry have empowered the nations' food security. Because of its impact in everyday life, the energy demand of this field is also high. It accounts for nearly 20% of global energy consumption. In buildings, 65% of the energy demand is towards meeting the HVAC&R requirements. There are multiple international protocols and treaties in place, to address this growing need while balancing it against the environmental impact. Though the terms of the Montreal protocol have been nearly addressed, thereby saving the ozone layer, the terms of the Kyoto protocol dealing with emissions of greenhouse gases and global warming are yet to be addressed fully. There is a dire need for innovations in the form of environmentally friendly alternate systems and refrigerants, along with improvement in terms of energy efficiency of RAC systems, so that the global rise in temperature can be arrested within 2°C, as per the terms of the Paris Agreement.

ABOUT NCRAC

The National Conference on Refrigeration and Air Conditioning (NCRAC) was started at IIT Madras in 2009. It continued to host this biennial conference in 2011 and 2013 while Rajalakshmi College of Engineering, Chennai hosted the 4th NCRAC in 2015 and NITK Surathkal hosted the 5th NCRAC in 2018. The recent edition of NCRAC was organized by KLN College of Engineering, Madurai, in 2020 in association with IIT Madras. Addressing the objective of the conference, NCRAC 2022 is taking up the international platform to disseminate the presented knowledge to the far reaches of the RAC field worldwide.

ABOUT IIT GUWAHATI

IIT Guwahati, the sixth member of the IIT fraternity, was established in 1994. At present, the Institute has eleven departments and five inter-disciplinary academic centres covering all the major engineering, science and humanities disciplines, offering B.Tech., B.Des., M.A., M.Des., M.Tech., M.Sc. and Ph.D. programmes. Within a short period of time, IIT Guwahati has been able to build up world class infrastructure for carrying out advanced research and has been equipped with state-of-the-art scientific and engineering instruments. IIT Guwahati was ranked best from India with a rank under 70 in annual list of best universities under 50 years of age by QS global rankings. The institute holds 7th position in the overall category of NIRF rankings by MHRD. IIT Guwahati's campus is on a sprawling 285 hectare plot of land on the north bank of the river Brahmaputra around 20 km from the heart of the city. Guwahati city is gateway to beautiful North-Eastern region of the country and linked with all major cities by rail, road and air.

ABOUT IIT TIRUPATI

IIT Tirupati, established in 2015, started functioning with the support of its mentoring institute, IIT Madras, from the academic year of 2015-16. By 2018, the academic program has expanded to nine departments covering major engineering, sciences and humanities discipline offering B.Tech., M.Tech., M.Sc., M.S.(R) and Ph.D. programmes. Though IIT Tirupati is comparatively young, it is aiming to reach and compete with the international ranking of the established institutes including older IITs. The curriculum for various programmes have an emphasis on theoretical knowledge and practice-oriented laboratories. Courses are well planned to nurture innovation, creativity, quality, teamwork, communication skills, ethics, and societal interaction. The construction of the permanent campus in a 548 acre scenic site is in progress with some buildings completed and functional since 2018. Tirupati town with its airport and proximity to Chennai and Bengaluru, gives it excellent connectivity.

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