

## About the Conference

The International Conference on Green Buildings and Sustainable Engineering (GBSE 2018) is organised by Rajagiri School of Engineering & Technology, Kochi, India together with the Research and Testing Centre for Thermal Solar Systems (TZS) at the Institute of Thermodynamics and Thermal Engineering (ITW), University of Stuttgart, Germany, with the theme ***Transforming our Built Environment through Innovation and Integration towards a Smart and Sustainable Future***. The conference will bring together green building advocates, industry, policy-makers, architects and academicians from different parts of the world. Engineers need to understand and evolve a sustainable solution to the future challenge to do more in a smart way requiring fewer resources, less energy and generating minimal waste. Green and smart buildings will reduce pollution and degradation of environment through efficient usage of energy, water and other resources supporting healthy living and improving productivity.

The Government of India is actively introducing programmes which promote green and smart technology through their Smart City Mission to improve the quality of urban living. The Government is encouraging industry, architects and service providers to adopt a green, smart and energy efficient technology. The Smart Cities CityMission is an urban renewal and retrofitting programme by the Government of India with a mission to develop 100 cities and make them citizen friendly and sustainable. The city of Kochi, located in the state of Kerala, often called as God's Own Country because of its natural beauty and scenic splendour, is one among the 20 cities that have been shortlisted by the Government of India in the 1st phase of Smart City Mission. Building industry, city planners and architects plays a leading role for the success of Smart City project. Kerala being an environmentally sensitive geographic region with resource deficiency, it is vital to promote the green building technology in strategic way. While up to now energy performance of the building is the primary focus in the green building concept, water conservation and the use of sustainable materials need more attention of research, development and implementation. For the strategic development of complete smart cities also advanced integral planning concepts including mobility, ICT infrastructure and the smart allocation of resources are required.

Kochi is one of the 28 Indian cities among the emerging 440 global cities that will contribute 50% of the world GDP by the year 2025, in a 2011 study done by the McKinsey Global Institute. Pressures of urbanization cause significant environmental deterioration and considerable reduction in the quality of urban living. A number of natural resources have been depleted. The population growth combined with increased traffic has resulted in air, water and soil pollution and increased generation of waste.

The conference GBSE 2018 will be an important step towards fulfilling the dream that one day we can live in a clean, healthy, and high quality environment, where cities, townships,

and communities are built on the fundamentals of Green Buildings and sustainable engineering.

## **About the Institution**

**Rajagiri School of Engineering & Technology (RSET)** is a premier Educational institution managed by the Sacred Heart Province of the Carmelites of Mary Immaculate (CMI) - the first-ever indigenous religious congregation for men in the Syrian Catholic tradition of Christianity in India. RSET is a part of the Rajagiri Vidyapeetham (seat of knowledge), a dream eternal, being unfolded in time through the relentless CMI quest for excellence in the pursuit of Wisdom. As an institution which bears the traditional Rajagiri hallmark of academic brilliance and social commitment, RSET has successfully carved a niche for itself in the sphere of Engineering Education and Research in the state within a very short span of its existence. The institution is accredited by National Assessment and Accreditation Council, the accreditation agency for institutions of higher education in India and many of the programmes at RSET are accredited by the National Board of Accreditation, the accreditation agency for the Technical Programmes in the country.

**Research and Testing Centre for Thermal Solar Systems (TZS) at the Institute of Thermodynamics and Thermal Engineering (ITW), University of Stuttgart,** is the largest testing laboratory and the largest university based research centre for thermal solar systems in Europe. ITW is active in the field of solar thermal energy and energy efficiency for more than 40 years. Key activities of ITW/TZS are related to testing and development of solar thermal components and systems such as solar collectors, solar energy stores and solar systems for domestic hot water preparation as well as space heating and cooling. Additionally ITW/TZS is developing, implementing and monitoring advanced energy supply concepts for urban districts based on solar district heating networks combined with seasonal energy storages. With regard to new and existing buildings ITW/TZS is developing and optimizing advanced energy concepts aiming to cover a large share of the building's heating, cooling and electricity demand by solar energy.

## **Conference Tracks**

1. Green Buildings
2. Smart Energy Systems
3. Green Manufacturing & Materials
4. Nanotechnology for Environmental Remediation and Protection
5. Sustainable Energy Technologies
6. Energy Storage Technology and Materials.
7. Life Cycle Analysis and Sustainability Assessment of Materials and Products
8. Recycling and Waste Management
9. Security of energy supply
10. Ecological Liveable Environment Construction

11. Sustainable Traffic Solutions including e-mobility
12. Effective Water Management Systems
13. Sanitation and Waste Water Management
14. Architectural concepts for Smart Cities including advanced tools such as GIS
15. Environmental Geotechnics
16. Ground Improvement Techniques

## Conference Chair



Dr.-Ing. Harald Drück is a Mechanical Engineer who has been working at the Institute for Thermodynamics and Thermal Engineering (ITW), University of Stuttgart for more than 20 years. Since 1999 he is the head of the Research and Testing Centre for Solar Thermal Systems (TZS). His main research interests lie in the field of solar thermal technology focusing on advanced heating and cooling systems as well as thermal energy storage and the development of performance testing methods as well as energy efficient solar buildings.

Harald Drück has authored or co-authored around 300 publications in the field of solar thermal energy and heat storage. He is convenor of several German and European working groups related to standardisation and testing of solar thermal systems and components such as the Solar Keymark Network, the Global Solar Certification Network and the Solar Certification Fund. With regard to education and knowledge transfer he globally acts as an advisor to several high-level organisations, is chairman or member of the scientific board of several conferences and workshops and teaches a highly successful post-graduate course on solar thermal energy at the University of Stuttgart. Furthermore he was one of the initiators of the German and European Solar Thermal Technology Platforms and is today a member of the steering committees of both platforms.

Besides his activities at the University he is the director of SWT – Solar- und Wärmetechnik Stuttgart. SWT is a spin-off company of ITW and acts as a service provider in the field of solar thermal energy, e.g. by manufacturing test facilities for solar thermal collectors and systems as well as by consulting activities

### Current positions:

- Head of “Research and Testing Centre for Solar Thermal Systems”, ITW, University of Stuttgart, a test laboratory accredited according to ISO 17025.
- Director of Solar- und Wärmetechnik Stuttgart (SWT).
- Adjunct Professor of the Rajagiri School of Engineering & Technology (RSET)



Dr.-Ing. Varghese Panthalookaran, Professor and Coordinator of Rajagiri Research and Consultancy Center (RRCC) at Rajagiri School of Engineering & Technology (RSET) has acquired doctoral degree in Mechanical Engineering (Dr.-Ing.) in 2007 from the University of Stuttgart, Germany, where he was also employed as research assistant. He holds a Master degree in Physics from Cochin University of Science and Technology (CUSAT). Currently he is a recognized research adviser of Birla Institute of Technology (BIT), Mesra/India and is also reviewer for international journals and conferences. He has written three books in three languages. His drama book in Malayalam titled: "Buddhan Veendum Chirikkunnu" (translated: Buddha Laughs Again) has won him the Endowment Award of Kerala Sahitya Academy in 2000. He also have a German book "Die Lehre Jesu als Schlüssel zur Lebensfreude" to his credit. He is member of professional bodies like American Society of Mechanical Engineering (ASME), Institute of Electrical and Electronics Engineers (IEEE) and Indian Society of Technical Education (ISTE). A project on "Design and Fabrication Of Suitable Condenser for a new type Solar Still" fully funded by Department of Science and Technology, Government of India was successfully completed recently by the Energy Research Group RSET under his leadership.

**Current positions:**

- Professor in the Mechanical Engineering Department of Rajagiri School of Engineering & Technology (RSET).
- Member of General Department Council for Education and Communication Media of the congregation of the Carmelites of Mary Immaculate (CMI).