IBPSA Singapore

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Seminar On "Pushing Next Frontiers in Green Building Design"

This seminar aims to share next-generation frontiers in green building design topics, from the points of views of researchers, practitioners and software developers. It will be delivered by two well-recognized green-design pioneers – **Dr. POH Hee Joo** from IHPC, ASTAR and **Mr. Eugene SEAH** from Surbana Jurong Group. As sponsors for this event, **Dr. Alex LEE** from Tian Building Engineering, Singapore and **Mr. Rohan Rawte** from IES Ltd are also invited to share their development strategies with regard to the thematic topic. This seminar is targeted at all participants from building practitioners, ESD consultants, architects and planners, as well as researchers and students from relevant institutions.

Event Time:
   2.00pm – 5:00pm, 27 September, 2019
Seminar Venue:
   Aster & Bluebell Room, Level 3, Singapore Polytechnic Graduates' Guild (SPGG),
   1010 Dover Road, Singapore 139658 (Gate No.4)
PEB - PDU Points: (Pending in application)
SGBC-GMAP CPD Points: (Pending in application)

Seminar Agenda:

2:00pm	Registration & Networking
2:30pm	Welcome speech by **Dr. Steve**, President of IBPSA Singapore
2:40pm	"*Development of Multi-physics Integrated Environmental Modeller (IEM)*", **Dr. POH Hee Joo**, Institute of High Performance Computing, A-STAR
3:10pm	"*Calibrated Digital Twins for the Built Environment*", **Mr. Rohan Rawte**, IES Ltd
3:30pm	Tea Break
4:00pm	"*Impact of Modelling and computational approach on design optimization, Seeing the unseen*", **Mr. Eugene SEAH**, Surbana Jurong Group
4:30pm	"*Integrated OpenBIM Workflow for better Building Performance Analysis and Design – ETTV, Wind Driven Rain, Thermal Comfort (Indoor and Outdoor), Solar Irradiance and Fire and Smoke Analysis*", **Dr. Alex K.H. Lee**, Managing Director, Co-Founder of BIM HVACTool, Tian Building Engineering, Singapore
4:50pm	Certificate of Appreciation presented by **Dr. Steve**, President of IBPSA Singapore
5:00pm	End of Seminar

Registration: Please register for your participation by clicking IBPSA Seminar by 20 Sept 2019**.**

For enquires on program and registration matters, please feel free to contact Dr. George XU by email: xuxg@ihpc.a-star.edu.sg.

Organized by:

IBPSA
Singapore

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Biography: Dr POH Hee Joo holds the position of Senior Research Scientist (Environmental Modelling) in Institute of High Performance Computing, A*STAR. He is also an Adjunct Associate Professor to both the Mechanical Engineering Department and Building Department of National University of Singapore (NUS). He is the pioneer adjunct lecturer for BCA Green Mark Professional course module for Computational Fluid Dynamics (CFD) Airflow Modelling for Green Buildings. He is an Associate Editor of the International Journal of Thermofluids. He has over 20 years of work experience in CFD research and consultancy jobs mainly focusing on Urban Physics; Environmental Health and Safety; and Building Performance and Sustainability. Since 2010, he has been appointed as an external assessor for the BCA Green Mark CFD Natural Ventilation projects. In 2013, he was appointed by BCA Green Mark as a member of the specialist committee for assisting BCA to chart the CFD criteria for Non-Residential Buildings. He has been invited as regular speaker at various agency events such as BCA International Green Building Conference (IGBC), MND Urban Sustainability R&D Congress and NEA Distinguished Speakers Forum to promote research focus on Urban Environmental Modelling and Sustainable Cities in Singapore.

Seminar Title : Development of Multi-physics Integrated Environmental Modeller (IEM)

Abstract: : In this seminar, Dr. POH will share about the recent the Integrated Environmental Modeller (IEM) jointly developed by A*STAR's Institute of High Performance Computing, Institute for Infocomm Research and HDB. IEM is a first-of-its-kind tool that allows user to model how various environmental factors such as solar, wind, temperature and noise impact one another individually, as well as their combined effects on urban plans and design. Using IEM, users will be able to visualise key environmental, thermal and aural comfort indicators on a virtual "Digital Twin" platform and allows iteration and continual refinement to urban plans. This reduces the risk of costly physical trial-and-error and allows development plans to be tested computationally before actual implementation. It also provides quantitative and scientific assessments for the environmental performance and allows user to understand the different trade-offs involved to aid decision-making in the planning process. IEM has won numerous awards, including the recent July 2019 Minister (National Development) R&D Merit Awards, Aug 2019 IES Prestigious Engineering Achievement Awards - to recognize the outstanding achievements of the engineers in Singapore; and Sep 2019 The ASEAN Outstanding Engineering Achievement Award.

Biography: Mr. SEAH HSIU-MIN, EUGENE joined the Surbana Jurong Group on 1 January 2017 as Senior Director, Group CEO's office, to spearhead and oversee the Group's special projects and strategic initiatives, in particular, the Group's Key Account Management Office, Digital Management Office, and Sustainability and Resiliency Office. He is also a Director on the Boards of Threesixty Cost Management and Threesixty Contract Advisory, for which his knowledge and expertise help to fortify the business thrust of the Group. Apart from his extensive experience in Quantity Surveying, Eugene injects sustainability value management and green approaches into his work to achieve project efficiency. He is a Green Mark professional and is knowledgeable in the field of sustainable buildings. He is also an Accredited Adjudicator under the Singapore Mediation Centre and a registered Mediator in the Singapore Institute of Surveyors and Valuers. Eugene works on enhancing productivity in Design and Construction and research on Computational BIM, xR and other productivity enhancement topics for the Surbana Jurong Group. His effort has won him several awards for SJ, including RICS Construction Professional of the Year (2019). Passionate about teaching, Eugene is also an Adjunct Associate Professor at the Department of Building, School of Design and Environment, National University of Singapore.

Seminar Title : Impact of Modelling and computational approach on design optimization, Seeing the unseen

Abstract: : With more buildings aiming for Super Low Energy and Net Zero Energy targets, it is inevitable to ignore the importance of modelling and computational design approaches. For any building, predicting the right demand is the key to optimize the equipment sizing and thus reduce the capital cost and operational expenses. Since buildings being one of the major energy guzzlers, adoption of modelling and parametric simulation during the early design stage has immense impact on the way we build and operate our buildings, precincts and city at large

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Biography: Mr. Rohan Rawte gained a bachelor in engineering with distinction from Shivaji University, India. He topped the University and was the gold medallist for the program. Rohan whose career spans over 15 years has been associated with the simulation industry right from the start. He's worked on complex simulation assignments and design optimization projects for IC engines, boilers, trucks, automobiles and industrial machinery before moving to the performance based analysis in the built environment domain. Rohan is responsible for sales, manages the business development and operations for key regions for the company. His divisions includes the Indian sub-continent & Asia. Rohan has been instrumental in developing strategy as well as technology directions for IES' new ICL (Intelligent Communities Lifecycle) suite of solutions. Having worked with IES since 2008, Rohan has also contributed to a number of complex building simulation & certification projects including the Abu Dhabi Financial Centre (USGBC LEED), Mather & Platt Factory, Kolhapur (IGBC Green Factories), Coal India HQ, Kolkata (IGBC LEED NC), amongst others. He is also an accomplished trainer/mentor having trained more than 1,000 people in his career. Over 500 of these have been on the IES Virtual Environment. Rohan provides mentoring, support and guidance to new and existing users of the IES Virtual Environment besides his team at IES.

Seminar Title : Calibrated Digital Twins for the Built Environment

Abstract: :

The Built Environment needs appropriate information and decision support tools to help people make the right decisions to improve performance and efficiency. Building Performance Simulation has powerful capability to predict building performance as it uses fundamental physics to simulate scenarios even when no prior data exists. Machine Learning shows great potential in the domain as it has capability to trawl through large datasets of historic information to extrapolate 'answers'. A hybrid approach which combined both these techniques gives a user the best-of-both-worlds capability. IES develops digital twins that uses the above hybrid approach to give a user very high accuracy calibrated digital twins. Such digital twins can then be used to optimize building performance..

Biography: Dr. Alex K. H. Lee takes the post of Managing Director in Tian Building Engineering, Singapore. He is a pioneer in large scale Computational Fluid Dynamics (CFD) in Singapore and has been awarded a number of prizes and honors and was instrumental in helping SCDF in establishing their 1st version of Fire Safety Performance code. As the Co-founder of BIM HVACTool™ – a comprehensive BIM Centric concept-to-detail sustainable building design tool for Green Building and Fire Safety Engineering which focuses on the use of Open Source algorithms and Open BIM concept, Dr. Lee has a very special interest in enhancing the use of advanced simulation technologies for more sustainable designs of tomorrow buildings and environmental development.

Seminar Title : Integrated OpenBIM Workflow for better Building Performance Analysis and Design – ETTV, Wind Driven Rain, Thermal Comfort (Indoor and Outdoor), Solar Irradiance and Fire and Smoke Analysis

Abstract: :

In an effort to empower Architects and Engineers to adopt simulation technology for more sustainable design of tomorrow buildings and environmental design, Dr. Alex and his team have developed an Integrated BIM Centric Building Performance Analysis software for the calculation of ETTV, Natural Ventilation, Wind Driven Rain, Thermal Comfort (Indoor and Outdoor), Solar Irradiance and Fire and Smoke Analysis. In this talk, he will highlight some of the case study using the state-of-the-art technology developed. The development of the software is partially funded by Singapore BCA and Singapore Spring.

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Seminar Venue:

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Site Map

Ways to get to the seminar site (SPGG):

➢   By Car:

Drive in SPGG from Dover Road through **Gate 4** of Singapore Polytechnic.

➢   By MRT

10-min walk from **Dover MRT**

➢   By bus
- Bus Stop A: SBS 33,196
- Bus Stop B: SBS 96, 151, 151A, 196, 196A, 183, 183A, 151E