

IVIS2019

14th International Vacuum Insulation Symposium
September 19 – 20, 2019, Kyoto Research Park (KRP), Kyoto, Japan

IVIS2019 Program

(Final Version)

Preface

Kyoto is an ancient capital, more than 1,200 years old. Hopefully, the participants will enjoy not only its historical buildings such as temples and shrines but also the natural beauty of the mountains surrounding the city. Autumn is one of the best seasons in Kyoto. The venue of the conference will be at Kyoto Research Park. As well known, Kyoto is 30 minutes by train from Osaka and 1.5 hours by limited express from Kansai international airport (KIX). Kyoto offers many hotels and various sightseeing spots. Here, we would like to welcome the 14th IVIS and its participation.

Organized by Kindai University, this two-day event fosters dialogue among scientists, academics and professionals from all around the world who are related to the research, development and production of Super Insulating Materials (SIM). IVIS 2019 will promote the co-operations between manufacturers and researchers and between western and eastern.

**Atsushi Iwamae (Kindai University)
Conference Chair**

Organizing committee

Atsushi Iwamae (Chairman, Kindai University)

Daisuke Ogura (Head of the secretariat, Kyoto University)

Masaru Abuku (Secretary, Kindai University)

Chiemi Iba (Kyoto University)

Junko Bessho (Secretary)

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Kaushik Biswas (ORNL, USA)

Samuel Brunner (Empa, Switzerland)

Roland Caps (va-Q-tec AG, Germany)

Yoash Carmi (Hanita Coatings, Israel)

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Genevieve Foray (INSA Lyon, France)

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Par Johansson (Chalmers University, Sweden)

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Daisuke Ogure (Kyoto University, Japan)

Marco Perino (Politecnico di Torino, Italy)

Daniel Quenard (CSTB, France)

Harjit Singh (Brunel University, UK)

Christoph Sprengard (FIW, Germany)

Bernard Yrieix (EDF, France)

Acknowledgements

IVIS2019 was partly supported by the financial support of transcosmos foundation.

Practical Information

- KRP map

https://www.krp.co.jp/english/spatial_services/convention/map/

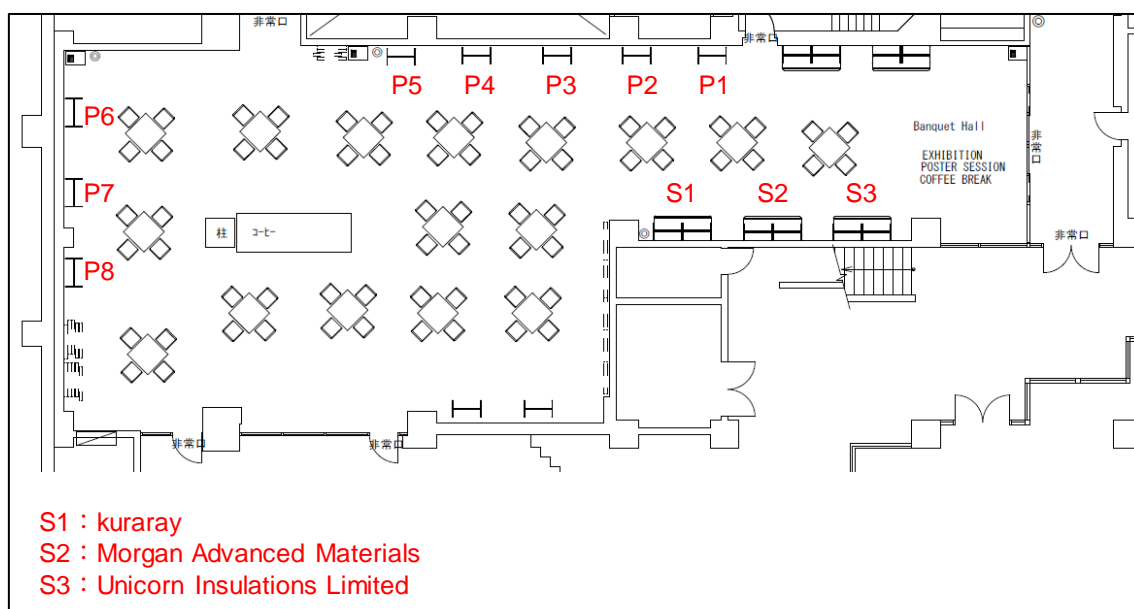
- Opening and closing ceremonies and oral presentation:

Buzz Hall, B1F, Bldg #4, West Block, KRP

- Sponsor exhibition, poster presentation, coffee break:

Banquet Hall, B1F, Bldg #4, West Block, KRP

IVIS2019 Sponsor (S1-S3) and poster presentation (P1-P8) map



- Lunch (September 19 and 20):

Restaurant PATIO, 1F, Bldg #1, East Block

- Banquet (dinner on September 19):

AKAGANE RESORT KYOTO HIGASHIYAMA 1925

<https://www.arkh.jp/wedding/access/>

- Wifi

Free wifi is available at KRP.

For any other questions, please feel free to ask at the IVIS2019 reception near the Buzz Hall entrance.

September 19 (Thursday)

8:00 Welcome registration

9:00 Opening Ceremony

Atsushi Iwamae (IVIS2019 Chairman)

Masahiro Ohshima (Dean, Graduate School of Engineering, Kyoto University, Japan)

Gregor Erbenich (VIPA International President)

Daisuke Ogura (IVIS2019 Secretary)

9:25-9:55 Keynote Speech (1)

Samuel Brunner (Empa, Switzerland)
"VIP aging and durability"

10:05-10:35 Keynote Speech (2)

Kazuki Nakanishi (Nagoya University, Japan)
"Aerogels -Transparent, Low-density Solids for Energy Management"

10:35-11:05 Keynote Speech (3)

Daisuke Ogura (Kyoto University, Japan)
"Heat and moisture research in Architecture and Cultural properties"

11:05-13:00 Lunch @Restaurant PATIO, 1F, Bldg #1, East Block

13:00-13:40 Session 1: Porous Materials Part 1

Chairperson: **Christoph SPRENGARD** (FIW Muenchen, Germany)

13:00-13:20 Development of VIP based on core insulators made from textile fibers

Jiri Zach (Brno University of Technology, Faculty of Civil engineering, Czech)

13:20-13:40 Sawdust based core material for eco-friendly Vacuum Insulation Panels (VIPs)

Mahmood Alam (University of Brighton, UK)

13:40-14:25 Poster Sessions + Coffee Break @Banquet Hall, B1F, Bldg #4

The titles and presenters of the poster sessions

P1. Molecular dynamic measurements, a tools to assess how surface chemistry modifies mechanical properties of mesoporous silica

Genevieve Foray (INSAVALOR, France)

P2. Calibration Method on the Thermal Conductivity Measurement in the Central Part of Vacuum Insulation Panels (VIP) by Heat Flow Meter Apparatus

Kensaku Mabuchi (Japan Testing Center for Construction Materials, Japan)

P3. Methods for renovation of Kyomachiya dwellings using vacuum insulation panels and evaluation of thermal-insulation performance

Yui Nakazawa (Kyoto University, Japan)

P4. Prediction on Long-term Thermal Performance of VIP using Glass Fiber Core Considering Influence of Getter

Taichi Tasaka (Japan Testing Center for Construction Materials, Japan)

P5. Wood-fibre panels as core material for VIP

Sebastian Tremel (FIW, Muenchen, Germany)

P6. Studying the effect of surface chemistry on the mechanical properties of silica nano-structures through atomistic simulations

Wassim Kassem (INSA-Lyon, France)

- P7. Ultralight carbon-based composites foam with considerable thermal insulation
Junxiong Zhang (Nanjing University of Aeronautics and Astronautics, China)
- P8. Organic-inorganic hybridization approach to industrial applications of aerogels as transparent thermal insulating materials
Ryota Ueoka (Kyoto University, Japan)

14:25-15:25 Session 2: Porous Materials Part 2

Chairperson: **Phalguni MUKHOPADHYAYA** (University of Victoria, Canada)

- 14:25-14:45 Impact of artificial ageing on mechanical and hygrothermal properties of Advanced-Porous-Materials (APMs) for buildings
Christoph Sprengard (FIW Muenchen, Germany)
- 14:45-15:05 Why does the mechanical behaviour of precipitated silica make them unsuitable today for their use in VIP cores?
Bernard Yrieix (EDF R&D, France)
- 15:05-15:25 Performance advancement of a new sub-micron pore size polymeric foam for vacuum insulation panels
Flavia Almeida (va-Q-tec AG, Germany)

15:25-16:10 Poster Sessions + Coffee Break @Banquet Hall, B1F, Bldg #4

16:10-17:30 Session 3: Characterization Part 1

Chairperson: **Harjit SINGH** (Brunel University London, UK)

- 16:10-16:30 Determination of Anisotropic Thermal Conductivity of VIP Laminate using Transient Plane Source Method
Par Johansson (Chalmers University of Technology, Sweden)
- 16:30-16:50 Development of self-healing films to improve durability of VIPs by in-situ remediation of film defects
Kaushik Biswas (Oak Ridge National Laboratory, USA)
- 16:50-17:10 Super VIPs – Vacuum Panels with exceptionally low degradation rate
Yoash Carmi (Avery Dennison Israel, Israel)
- 17:10-17:30 Determining the air permeation rate into VIPs in less than 24 hours using Helium permeation
Yoash Carmi (Avery Dennison Israel, Israel)

17:30-18:50 Shuttle Bus to Dinner

19:00-21:00 Dinner

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<https://www.arkh.jp/wedding/access/>

September 20 (Friday)

9:50-10:30 Session 4: Characterization Part 2

Chairperson: **Bernard YRIEIX** (EDF R&D, France)

9:50-10:10 Increase of thermal conductivity of vacuum-panels with fumed silica cores in relation to absorbed moisture – hygrothermal simulations and measurements

Christoph Sprengard (FIW Muenchen, Germany)

10:10-10:30 Correlation between thermal properties and internal microstructure of vacuum insulation panels with lamellar glass fiber core material

Zhou Chen (Nanjing Tech University, China)

10:30-11:00 Coffee Break @Banquet Hall, B1F, Bldg #4

11:00-12:20 Session 5: Application

Chairperson: **Marco PERINO** (Politecnico di Torino, Italy)

11:00-11:20 A cost-optimal sensitivity analysis of internal VIPs application in buildings

Márcio Gonçalves (ITeCons / University of Coimbra, Portugal)

11:20-11:40 Application of Vacuum Insulation Panel in Slim Façade: from Lab to In-situ Experimental Evaluations

Fred Edmond Boafu (Kongju National University, Korea)

11:40-12:00 Study on thermal performance of VIP applied wall by installation method in building

Sang-Myung Kim (Kongju National University, Korea)

12:00-13:20 Lunch @Restaurant PATIO, 1F, Bldg #1, East Block

13:20-14:40 Session 6: Aging

Chairperson: **Par JOHANSSON** (Chalmers University of Technology, Sweden)

13:20-13:40 Thermal and aging characterization of stand-alone and foam-embedded VIPs for building applications

Kaushik Biswas (Oak Ridge National Laboratory, USA)

13:40-14:00 Structural characterization of nanostructured silica ageing: Imaging and analysing particles and pores from a few nanometres up to 100nm

Bruno Chal (MATEIS, France)

14:00-14:20 Utilization of the vacuum insulation panels in a factory and comparison of long term performance measurement using micro-pressure sensor and prediction value

Hideya Yamamoto (Asahi Fiber Glass Co., Ltd., Japan)

14:20-14:40 Aging (2011-2019) of Glass Fiber Core VIPs in Arctic Canadian Climate

Phalguni Mukhopadhyaya (University of Victoria, Canada)

14:40-15:10 Coffee break @Banquet Hall, B1F, Bldg #4

15:10-16:30 Session 7: Application and LCA

Chairperson: **Genevieve FORAY** (INSAVALOR, France)

15:10-15:30 The Wall-ACE project: an overview of the in-field monitoring on the novel Aerogel-based products

Marco Perino (Politecnico di Torino, Italy)

15:30-15:50 Vacuum Insulation Panels for Fish Box

Sankarshan Verma (Brunel University London, UK)

15:50-16:10 Long-term Performance of Silica Aerogel and Aerogel Based Composites: A Literature Review Highlighting Pathways for Further Studies

Ali Naman Karim (Chalmers University of Technology, Sweden)

16:10-16:30 LCA Analysis of Vacuum Insulation Panels and their Sensitivity to EoL and Future Grid Decarbonisation Scenarios

Shahaboddin Resalati (Oxford Brookes University, UK)

16:45-17:15 Closing Ceremony

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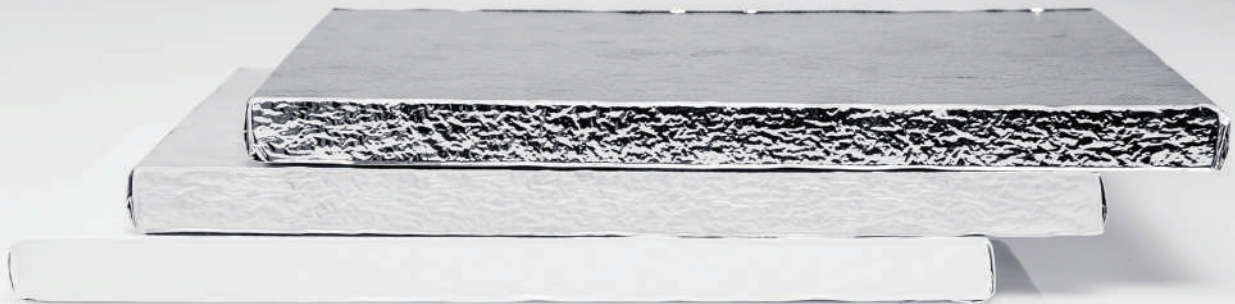


VACUUM INSULATION PANEL



GLOBAL ASSOCIATION

The association representing the interests of the global vacuum insulation panel industry



REASONS TO JOIN



STANDARDISATION

Contribute to shaping the regulatory framework and standardisation process



NETWORKING

Network with peer high-level representatives



INFLUENCE

Influence the association's strategy and positions



RAL VIP QUALITY LABEL

Free participation to GSH; shape the rules of the RAL VIP Quality Label



EXPERT INFORMATION

Gain access to technical studies, resources, guides and updates financed by our association



KNOWLEDGE SHARING

Share knowledge, expertise & best practices with the members of our association



AWARENESS

Benefit from resources (videos, collaterals) to increase awareness on VIPs



EVENTS

Participate in high level conferences with policy makers, industry peers and experts



MONITORING

Monitoring of key legislation and participation in public consultations

VACUUM INSULATION PANEL



GLOBAL ASSOCIATION

WHO CAN JOIN?

REGULAR MEMBERS

- Manufacturers of VIPs
- Material suppliers to VIP industry
- Equipment suppliers to VIP industry

ASSOCIATE MEMBERS

Companies with an interest in the VIP industry which do not fall in one of the previous categories

ASSOCIATIONS

National or sector not-for-profit organisations with a interest in the VIP industry

ACADEMIA

Universities, research institutes & laboratories with an interest in the VIP industry

OUR MEMBERS

REGULAR MEMBERS



ASSOCIATE MEMBERS



ACADEMIA MEMBERS



More info ?

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VIPA International is a proud Platinum Sponsor of IVIS Kyoto 2019

The logo consists of the words "FIBER" and "GLASS" in a bold, sans-serif font, separated by a red diamond-shaped plus sign. The entire logo is enclosed within a red horizontal oval border.

FIBER + GLASS

ASAHI FIBER GLASS

Asahi Fiber Glass offers glass wool thermal insulations and building material products that help create comfortable and highly energy-efficient spaces and that conserve the global environment, as well as leading-edge materials for automobiles and electric machinery for example Vacuum insulation panels (VIPs). VIPs typically capitalize on vacuum technology for boosting thermal insulation performance by creating a vacuum condition around the insulator and lowering the air thermal conductivity to a near-zero level. Our product adopts glass wool specially developed for vacuum insulators to further enhance thermal insulation performance.