

PROGRAM

Tuesday 11th - 14:00 - 18:15

14:00 - 14:15 **Open Ceremony**

14:15 - 14:45 **Keynote Lecture.**

Beyond Flow Assurance - Opportunities and Challenges with Gas Hydrates. **Peter Englezos**

14:45 - 16:45 **Session 1 – Chair Claire Pirim**

Mesomorphology of Clathrate Hydrates from Molecular Ordering. **Carlos L. Bassani,**
Investigation of [BMIM]FeCl₄ ionic liquid as hydrate promotor for carbon capture from seawater. **Angsar Serikkali. Candidate to the best oral presentation**

Understanding the Influence of Nano-Bubbles on CO₂ Hydrate Growth: An Investigation from Experimental and Molecular Dynamics Simulation. **Parisa Naeiji**

Investigation of the crystallization kinetics of pure and mixed hydrates from mixtures of carbon dioxide and methane. **Baptiste Bouillot**

Promoting effect of a natural peptide on methane-hydrate formation: insights from experiments and molecular-dynamics simulations. **Bastien Radola**

Molecular dynamics simulations of the effect of anti-agglomerant and wax molecular on methane hydrate growth. **Yumo Zhu. Candidate to the best oral presentation**

Investigating Deuterated Clathrate Hydrates as Novel Moderator Material for Very Cold Neutrons – A Neutron Scattering Study. **Valentin Czamler. Candidate to the best oral presentation**

The Impact of Alcohol and Ammonium Fluoride on Pressure-Induced Amorphization of Cubic Structure I Clathrate Hydrates. **Lilli-Ruth Fidler. Candidate to the best oral presentation**

16:45 - 17:00 **Coffee Break**

17:00 - 18:15 **Session 1 – Chair Bohui Shi**

Effect of perchloric acid on the thermodynamics of tetrahydrofuran and mixed methane/tetrahydrofuran hydrates. **Dounya Frah. Candidate to the best oral presentation**

Emptied hydrates as advanced functional materials: from a scientific curiosity to hydrogen storage applications. **Leonardo del Rosso**

Experimental determination of stable and metastable equilibria involving CO₂ hydrate, ice, liquid water and gaseous CO₂. **Abdelhafid Touil. Candidate to the best oral presentation**

Inclusions of Na⁺ and Cl⁻ inside methane hydrate crystallized into a silica pore using Molecular Dynamics. **Ángel M. Fernández-Fernández**

The gas hydrate ‘nozzle’ effect. **Shubhangi Gupta**

19:00 **Icebreaker “Caffè degli Specchi”, Piazza Unità, City center**

Wednesday 12th - 9:00 - 17:45

9:00 - 10:30 **Session 2 - Chair Ana Cameirao**

Cases where it would be difficult to detect the causes of blockage. **Bahman Tohidi**
Experiments and Modeling of Gas Hydrate Wall Deposition Mechanisms in Multiphase Sheared Systems. **Rigoberto E. M. Morales**
Mechanistic Model of Hydrate Deposition Processes in Horizontal Oil-Dominated Flows. **Enqi Guo. Candidate to the best oral presentation**
Experimental investigation of gas hydrate formation in crude oil and high salinity system. **Luiz Fernando Santos De Vasconcelos. Candidate to the best oral presentation**
A Transient Model to Predict Hydrate Slurry Flow in Horizontal Undulating-Pass in Gas/Oil/Water-Dominated systems. **Haoqi Chen. Candidate to the best oral presentation**
Influence of hydrate-like particles in stratified and slug multiphase flow. **Vitor Machado. Candidate to the best oral presentation**

10:30 - 11:00 **Coffee break and Poster sessions**

11:00 - 12:45 **Session 2 - Chair Rigoberto Morales**

Oil/Water Partitioning of Environmentally Improved Anti-Agglomerant Low Dosage Hydrate Inhibitor. **Regan Jones**
Sustainability Benefits of Switching from Thermodynamic Hydrate Inhibitors to Anti-Agglomerant Low Dosage Hydrate Inhibitors. **Jeremy Bartels**
Gas Hydrate Slurry Transportability in Condensate Systems. **Amadeu Sum. Candidate to the best oral presentation**
Gas-Liquid Flow Experiments and Modeling in a Novel Rocking and Rolling Flow Loop. **Gianluca Lavallo. Candidate to the best oral presentation**
Spreadsheet Modelling of Thermohydraulic Profile of Uninsulated North Sea Pipeline for Hydrate and Corrosion Control. **Bassey Bassey. Candidate to the best oral presentation**
Transportability of a hydrate slurry in the presence of wax. **Lino Luiz Meneghel. Candidate to the best oral presentation**

12:45 - 14:00 **Lunch pack included, to be enjoyed in the outdoor areas of ICTP, adjacent to Miramare Park**

14:00 - 14:45 **Session 2 - Chair Michele Ciulla**

Efficient Gas Hydrate Characterization for Flow Assurance: A Focus on Thermodynamic and Kinetic Analysis. **Ernesto Petteruti**
Study on the hydrate dissociation in the high-pressure flow loop. **Shangfei Song**
Experimental determination of methane diffusivity in water and brine under hydrate formation conditions. **Thales Henrique Sirino. Candidate to the best oral presentation**

14:45 - 16:00 **Session 3 – Chair Jasmina Obhodaš**

Impact of Salts on CO₂ Hydrates and Injectivity during CO₂ Storage in Depleted Gas Fields. **Mahnaz Aghajanloo**

Water content measurements for pure CO₂ and a CO₂-rich mixture in equilibrium with hydrates at 253 to 283 K and 3000 to 6000 psia using the DSH analytical technique.

Larissa Torres

*A novel high-pressure acoustic apparatus to investigate gas hydrate formation and distribution in porous media. Agnissan Art. **Clarie Constant***

*Exploring the Minimum Detectable Concentration of Methane Hydrate Using Associated Alpha Particle Technique. **Josip Batur***

Kinetic Study of Binary Gas Mixtures for Understanding Mechanism of Hydrate Formation in the Sea of Marmara: Experimental and Molecular Dynamics Simulation Approaches.

Atousa Heidari

16:00 - 16:30 **Coffee break and Poster Sessions**

16:30 - 17:45 **Session 3 – Chair Michela Giustiniani**

*Unraveling the dynamics of gas hydrate formation and methane migration in the western Black Sea: Insights from a basin-scale numerical model. **Ewa Burwicz-Galerie***

*Seafloor Pockmarks on the Chatham Rise, New Zealand – Could CO₂ Hydrate be Involved in Their Formation? **Ingo Pecher***

*Exploring the efficiency of microbial anaerobic oxidation of methane as sink to hydrate-sourced methane. **Maria Ruiz De La Fuente***

*Effects of Methane Hydrate Phase Transition on Deformable Sediment Structure Evolution under Cold Seep System. **Xuan Kou. Candidate to the best oral presentation***

*Image-based pore network model to investigate hydrate pore habit effect on dynamic permeability evolution in hydrate-bearing sediments. **Mingqiang Chen. Candidate to the best oral presentation***

19:30 **Young and Science at Caffè San Marco**

Thursday 13th - 9:15 - 13:00

9:15 - 10:30 **Session 4 – Chair Beatrice Castellani, Nick O'Neill, Zhenyuan Yin**

*A Novel Method for Natural Gas Hydrate Production: Depressurization and Backfilling with In-situ Supplemental Heat. **Yuxuan Li***

*New Insights into the self-preservation phenomenon of methane hydrates. **Belkacem Samar***

*Hybrid Promoters for Synergistic Enhancement of Thermodynamic Stability of Methane Hydrates. **Seol Jiwoong***

*Risk management for natural gas-hydrogen blend hydrate formation in pipeline transport. **Jeong-Hoon Sa***

*Prospects for hydrate-based energy storage technologies. **Andrey Stoporev, Anton Semenov, Daria Sergeeva, Denis Voronin***

10:30 - 11:00 **Coffee break and Poster sessions**

11:00 - 13:00 **Session 4 – Chair Beatrice Castellani, Nick O'Neill, Zhenyuan Yin**

*Evaluation Of 1,1-Difluoroethane as hydrate former for hydrate based produced water desalination. **Nagu Daraboina***

*A Dual Hydrate-Based Desalination and CO₂ Capture Process: A Raman Spectroscopy Approach. **Claire Pirim***

*Rheological characterization of various mixtures of CO₂ hydrate slurries for low temperature refrigeration applications. **Rihab Khirallah***

*Phase equilibrium of CO₂ and Xe hydrate crystals in presence of food products. **Boumaiza Houaria***

*On the use of gas hydrates by a CO₂-based electrothermal energy storage system: modeling and evaluation. **Ioannis N. Tsimpanogiannis***

*CO₂ hydrates crystallization kinetic parametric study: effect of impeller type. **Véronique Osswald. Candidate to the best oral presentation***

*Hypurtext: elevating textile wastewater purification for sustainable production. **Subhash Sharma, Candidate to the best oral presentation***

*CO₂ hydrate formation kinetics in metallic porous media in the presence of amino acid. **Ansari Ayaj Ahamad. Candidate to the best oral presentation***

13:00 - 14:00 **Lunch pack included, to be enjoyed in the outdoor areas of ICTP, adjacent to Miramare Park.**

15:00 - 18:00 **Visit to the multidisciplinary Research Center ELETTRA Sincrotrone. A transfer service is scheduled to depart from ICTP at 2:30pm and return directly to the city center after the visit.**

19:30 **Social Dinner**

Friday 14th - 9:15 - 13:45

9:15 - 11:00 **Session 4 – Chair Beatrice Castellani, Nick O'Neill, Zhenyuan Yin**

*Clathrate hydrates: A cool way to store carbon dioxide permanently. **Linga Praaven***

*Ultra-rapid CO₂ hydrate formation kinetics enabled by magnesium coupled with amino acid as promoter. **Yan Li***

*CCS - CO₂ hydrate formation kinetics in porous media under depleted reservoir storage conditions. **Peyman Dehghani***

*Geological CO₂ storage in subsurface tested in microfluidics coupled with microscope and Raman spectroscopy. **Qian Ouyang***

*Pore-scale investigation of the effect of heterogeneous permeability on CO₂ hydrate kinetics. **Lifei Yan***

*Sustainable CO₂ Capture in Seawater: Exploring L-Tryptophan Kinetic Promotion in Fresh and Saline Environments. **Abdelhafid Ait Blal***

*Experimental and Computational Investigation on Multiphase Flow Behavior of CO₂ injection into Deep-Sea Sediment. **Yohan Lee, Jonghyuk Lee, Woojin Go, Yongwon Seo, Arnaud Desmedt***

11:00 - 11:30 **Coffee break and Poster sessions**

11:30 - 12:30 **Session 4 – Chair Beatrice Castellani, Nick O'Neill, Zhenyuan Yin**

Hydrate-based gas separation of systems including hydrogen in porous media: A thermodynamic approach. Saheb Maghsoodloo

Optimizing H₂ uptake in H₂-THF hydrate and its mechanism: Implication on hydrate-based H₂ storage. Zhenyuan Yin

Improvement of hydrogen clathrate formation by reverse micelles and optimization of the formulative parameters. Michele Ciulla

Hydrogen storage in C₂ hydrogen hydrate. Tomasz Poreba

12:30 - 13:15 **Session 5 – Chair Leonardo del Rosso, Bertrand Chazallon, Elodie Gloesener**

Exploring the stability and new structures of gas filled ices up to Mbar pressures. Tomasz Poreba

Gas separation and storage in mixed clathrate hydrates as studied by molecular simulations: Applications to astrophysical contexts. Antoine Patt

Gas hydrates as indicators of cryomagmatic processes on Ocean worlds. Victoria Muñoz-Iglesias

13:15 - 13:45 **Presentation of the Candidatures to host the next ECGH and goodbye to the next edition!**

13:45 - 14:45 **Lunch pack included, to be enjoyed in the outdoor areas of ICTP, adjacent to Miramare Park.**

Poster Session

Session 1

Thermodynamic criterion for predicting phase coexistence between two clathrate structures with different composition. Vincent Ballenegger, Olivia S. Moro and Nigel B. Wilding

Unraveling the effect of double occupancy in N₂ gas hydrates. Ludovic Martin-Gondre, Maxime Legrand, Claire Pétuya, Cyrielle Métails, Jacques Ollivier, Arnaud Desmedt

Relative thermodynamic stability of gas hydrate structures from Lattice-Switch Monte Carlo simulations. Olivia Moro. Candidate to the best poster presentation

Flue gas and desalination from seawater : thermodynamics and kinetic influence of salt and cooling rate. Ansgar Serikkali, Jérôme Douzet, Jean-Michel Herri, Baptiste Bouillot

CO₂ sequestration via gas hydrates: Raman and morphological characterization of CO₂, CH₄ and CO₂/CH₄ gas hydrates. Marco Zannotti

Session 2

Analysis parameters for evaluating gas hydrate kinetic inhibitor by pressurized microcalorimetry. Fagner Cabral. Candidate to the best poster presentation

Deposition and agglomeration characteristics of gas hydrates in natural gas pipelines by using chemical additives. **Seongah Park**

Direct-Imaging System Using Electrical Impedance for Hydrates Monitoring in Rock-Flow Cell. **Jean P. N. Longo**

Novel method and device to detect gas hydrates formation likelihood inside a pipeline. **Simone Arca**

Understanding Methane Hydrate Adhesion on Surfaces: A Preliminary Investigation. **Serena Pilato.**

Session 3

Subsurface heat, salt and other inhibitors of methane hydrate stability in the Mediterranean Basin. **Angelo Camerlenghi**

Direct hydrate-based CO₂ sequestration in marine environments: lessons learned from CO₂-CH₄ replacement in natural gas hydrates. **Beatrice Castellani**

Dynamic of the gas hydrate/free gas system based on geophysical analysis and paleo-BSR modeling. **Umberta Tinivella Umberta**

Fabrication of silica gel-clathrate hydrate composite for improved CO₂ storage efficiency. **Siyoon Jeong**

Geophysical evidence for gas hydrate/free gas associated with mud volcanism in the western Ross Sea (Antarctica). **Martina Busetti**

Reprocessing of 2D seismic data for the search of gas hydrates in the Eastern Mediterranean region. **Agnese Chies. Candidate to the best poster presentation**

Storage of methane and carbon dioxide in sediments. **Daria Sergeeva. Candidate to the best poster presentation**

Temporal variability of the stability field of methane hydrates in the oceans. **Leonardo Riccucci. Candidate to the best poster presentation**

Session 4

Towards storing and transporting gases in the hydrate form. **Matvei Semenov, Abdolreza Farhadian, Ulukbek Mirzakimov, Andrey Stoporev, Mikhail Varfolomeev, Roman Pavelyev**

A novel experimental methodology for investigating the growth kinetics and porous structure of surfactant-promoted gas hydrate. **Daniel Broseta**

Exploration of injectivity and additives for generation of CO₂ hydrate capsules in subsurface. **Qian Ouyang**

Energy and carbon footprint of the CO₂-CH₄ replacement process integrated with membrane-based separation. **Federico Rossi**

Kinetic hydrate inhibitor in mono ethylene glycol regeneration units: benefits, impacts and theoretical reduction in energy consumption. **Jackson, Steven**

Optimizing the formation of hydrates for highly efficient CO₂ capture. **Doyeon Kim, Jeong-Hoon Sa**

Understanding the influence of TRP on the kinetics of CO₂ hydrates growth using molecular dynamics simulation. **Xinrui Cai. Candidate to the best poster presentation**

Partition of CO₂ into clathrate hydrate cages: investigation by vibrational spectroscopy. **Rima Haidar. Candidate to the best poster presentation.**

Molecular simulations of mixed clathrate hydrates including ionic species. **Victoire Meko Fotso. Candidate to the best poster presentation**

Optimizing Biogas Upgrading with Clathrate Hydrates: Influence of Different Water Phases and Additives. **Rafal Damian Wolicki. Candidate to the best poster presentation**

Phase equilibria and formation kinetics of CF3I hydrates as clean fire extinguishing agents. **Jonghwan Lee**

Cation and anion effects of imidazolium based ionic liquids on Kinetic properties of methane hydrate formation in imidazolium based ionic liquids combined Cl⁻ and FeCl₄. **Suhyeon Son**

Potential kinetic promoters for CO₂/CH₄ separation: IR vs in-situ Raman determinations. **Nadia Barbacane. Candidate to the best poster presentation**

Molecular insights into hybrid Methane physisorption-hydrate formation in spiral halloysite nanotubes: Implications for energy storage. **Fengyi Mi. Candidate to the best poster presentation**

Energy and Economic Analysis on Different Technologies of Natural Gas Storage. Ahmed Omran, Beatrice Castellani, Valentin Valtchev

Session 5

Spectroscopic study of the methane hydrate at high pressure and temperature. **Selene Berni. Candidate to the best poster presentation**

Methane Outgassing from Clathrate Hydrates on Titan: Partial Dissociation and Substitution Mechanisms. **Elodie Gloesener**

Ammonia incorporation in methane clathrate within the subsurface ocean of Titan. **S. Nozaki. Candidate to the best poster presentation**

The conference secretariat will be open during the conference days from 9 am to 17 pm. For further information, please contact the organizing secretariat at the following contacts: ecgh2024@theoffice.it - +39 338 3387091