

# PROGRAM ECGH2024 – Trieste 11-14 June 2024

Tuesday 11<sup>th</sup> - 14:00 - 18:00

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 and Shangfei Song**

*Mesomorphology of Clathrate Hydrates from Molecular Ordering.* **Carlos L. Bassani,**  
*Understanding the Influence of Nano-Bubbles on CO<sub>2</sub> 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**

*Investigation of [BMIM]FeCl<sub>4</sub> ionic liquid as hydrate promotor for carbon capture from seawater.* **Angsar Serikkali. Candidate to the best oral presentation**

16:45 - 17:15 **Coffee Break**

17:15 - 18:00 **Session 1 – Chair Marco Zannotti and Shangfei Song**

*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 CO<sub>2</sub> hydrate, ice, liquid water and gaseous CO<sub>2</sub>.* **Abdelhafid Touil**

19:00 **Icebreaker “Caffè degli Specchi”, Piazza Unità d'Italia, 7, Trieste center**

**A transfer service is scheduled to depart from ICTP at 18:15 directly to the city center**



## Wednesday 12<sup>th</sup> - 9:15 - 18:00

### 9:15 - 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**

*Influence of hydrate-like particles in stratified and slug multiphase flow.* **Vitor Machado.**  
*Experimental investigation of gas hydrate formation in crude oil and high salinity system.* **Moises A. Marcelino Neto.**

*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**

### 10:30 - 11:15 **Coffee break and Poster sessions**

### 11:15 - 12:30 **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-Liquid Flow Experiments and Modeling in a Novel Rocking and Rolling Flow Loop.* **Madina Naukanova. 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**

*Mechanistic Model of Hydrate Deposition Processes in Horizontal Oil-Dominated Flows.* **Enqi Guo. Candidate to the best oral presentation**

### 12:30 – 12:45 **Groupement De Recherche (GDR) Hydrates de Gaz. Arnaud Desmedt**

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

### 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**

*Experimental determination of methane diffusivity in water and brine under hydrate formation conditions.* **Thales Henrique Sirino.**

*Study on the hydrate dissociation in the high-pressure flow loop.* **Shangfei Song**

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

*Impact of Salts on CO<sub>2</sub> Hydrates and Injectivity during CO<sub>2</sub> Storage in Depleted Gas Fields.* **Mahnaz Aghajanloo**

*Water content measurements for pure CO<sub>2</sub> and a CO<sub>2</sub>-rich mixture in equilibrium with hydrates at 253 to 283 K and 3000 to 6000 psia using the DSH analytical technique.* **Larissa Torres. Candidate to the best oral presentation**

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



*Exploring the Minimum Detectable Concentration of Methane Hydrate Using Associated Alpha Particle Technique.* **Josip Batur. Candidate to the best oral presentation**  
*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. Candidate to the best oral presentation**

16:00 - 16:45 **Coffee break and Poster Sessions**

16:45 - 18:00 **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 CO<sub>2</sub> 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, via Battisti 18/A, Trieste center**

## Thursday 13<sup>th</sup> - 9:00 - 12:30

### 9:00 - 10:30 **Session 4 – Chair Beatrice Castellani**

*Energy and Economic Analysis on Different Technologies of Natural Gas Storage.* **Ahmed Omran**

*New Insights into the self-preservation phenomenon of methane hydrates.* **Belkacem Samar. Candidate to the best oral presentation**

*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**

*A Novel Method for Natural Gas Hydrate Production: Depressurization and Backfilling with In-situ Supplemental Heat.* **Yuxuan Li. Candidate to the best oral presentation**

*Prospects for hydrate-based energy storage technologies.* **Andrey Stoporev**

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

### 11:00 - 12:45 **Session 4 – Chair Nick O'Neill**

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

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

*A Dual Hydrate-Based Desalination and CO<sub>2</sub> Capture Process: A Raman Spectroscopy Approach.* **Bertrand Chazallon**

*Rheological characterization of various mixtures of CO<sub>2</sub> hydrate slurries for low temperature refrigeration applications.* **Rihab Khirallah. Candidate to the best oral presentation**

*Phase equilibrium of CO<sub>2</sub> and Xe hydrate crystals in presence of food products.* **Boumaiza Houaria. Candidate to the best oral presentation**

*On the use of gas hydrates by a CO<sub>2</sub>-based electrothermal energy storage system: modeling and evaluation.* **Ioannis N. Tsimpanogiannis**

*CO<sub>2</sub> hydrates crystallization kinetic parametric study: effect of impeller type.* **Véronique Osswald. Candidate to the best oral presentation**

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

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 at Savoy Restaurant, Riva del Mandracchio, 4, Trieste Center**

## Friday 14<sup>th</sup> - 9:30 - 14:00

### 9:30 - 11:00 **Session 4 – Chair Zhenyuan Yin**

*Ultra-rapid CO<sub>2</sub> hydrate formation kinetics enabled by magnesium coupled with amino acid as promoter.* **Yan Li. Candidate to the best oral presentation**

*CCS - CO<sub>2</sub> hydrate formation kinetics in porous media under depleted reservoir storage conditions.* **Peyman Dehghani. Candidate to the best oral presentation**

*Pore-scale investigation of the effect of heterogeneous permeability on CO<sub>2</sub> hydrate kinetics.* **Lifei Yan**

*Sustainable CO<sub>2</sub> 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 CO<sub>2</sub> injection into Deep-Sea Sediment.* **Yohan Lee**

*Geological CO<sub>2</sub> storage in subsurface tested in microfluidics coupled with microscope and Raman spectroscopy.* **Qian Ouyang. Candidate to the best oral presentation**

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

### 11:30 - 12:30 **Session 4 – Chair Beatrice Castellani**

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

*Optimizing H<sub>2</sub> uptake in H<sub>2</sub>-THF hydrate and its mechanism: Implication on hydrate-based H<sub>2</sub> storage.* **Zhenyuan Yin**

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

*Hydrogen storage in C<sub>2</sub> hydrogen hydrate.* **Tomasz Poreba**

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

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

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

*Exploring the stability and new structures of gas filled ices up to Mbar pressures.* **Livia Bove**

### 13:15 - 13:25 **Best poster and best oral presentation awards**

### 13:25 - 13:35 **Presentation of the 2026 ECGH-ICGH. Jean-Michel Herri**

### 13:35 - 14:00 **Presentation of the Candidatures to host the 2028 ECGH and goodbye to the next ECGH edition!**

### 14:00 **Lunch pack included, to be enjoyed in the outdoor areas of ICTP.**



## Poster Session

### Session 1

*Thermodynamic criterion for predicting phase coexistence between two clathrate structures with different composition.* **Vincent Ballenegger**

*Unraveling the effect of double occupancy in N<sub>2</sub> gas hydrates.* **Ludovic Martin-Gondre**  
*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.* **Jean-Michel Herri**

*CO<sub>2</sub> sequestration via gas hydrates: Raman and morphological characterization of CO<sub>2</sub>, CH<sub>4</sub> and CO<sub>2</sub>/CH<sub>4</sub> 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. Candidate to the best poster presentation**

*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.**

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

### Session 3

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

*Direct hydrate-based CO<sub>2</sub> sequestration in marine environments: lessons learned from CO<sub>2</sub>-CH<sub>4</sub> 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**

*Fabrication of silica gel-clathrate hydrate composite for improved CO<sub>2</sub> storage efficiency.* **Siyoon Jeong. Candidate to the best poster presentation**

*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**

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

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

#### Session 4

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

*Understanding the influence of TRP on the kinetics of CO<sub>2</sub> hydrates growth using molecular dynamics simulation.* **Xinrui Cai. Candidate to the best poster presentation**

*Partition of CO<sub>2</sub> 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 CF<sub>3</sub>I hydrates as clean fire extinguishing agents.* **Jonghwan Lee. Candidate to the best poster presentation**

*Cation and anion effects of imidazolium based ionic liquids on Kinetic properties of methane hydrate formation in imidazolium based ionic liquids combined Cl<sup>-</sup> and FeCl<sub>4</sub>.* **Suhyeon Son. Candidate to the best poster presentation**

*Potential kinetic promoters for CO<sub>2</sub>/CH<sub>4</sub> 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**

*Optimizing the formation of hydrates for highly efficient CO<sub>2</sub> capture.* **Doyeon Kim. Candidate to the best poster presentation**

*Towards storing and transporting gases in the hydrate form.* **Matvei Semenov**

#### 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.* **Shunsuke 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](mailto:ecgh2024@theoffice.it) - +39 338 3387091*