

Journées plénières 'Hydrates de gaz', Lille (France), 3-5 Décembre 2024



□ Tuesday 3rd December

14h00 – Introduction

14h15-15h35 Session 1 – « Astrophysics and Planetology »

14h15-14h55 – **Invited**, Victoria Munoz-Iglesias, “*Thermodynamics of gas hydrates in the icy crust of ocean worlds*”, LPG, UMRC6112 – NANTES, France

14h55-15h15 – Gabriel Tobie, “*Implications of gas hydrate for the thermo-chemical evolution of icy worlds in the outer solar system and beyond*” LPG UMRC6112 – NANTES, France

15h15-15h35 – Elodie Gloesener^{1,2}, “*Methane - Ethane Substitution in Clathrate Hydrates Under Titan-Like Conditions*», ¹JPL CalTech, USA, ²Laboratoire PhLAM, UMR 8523, Université de Lille, France

❖ **15h35-16h00 Coffee break + Poster discussion (see below)**

16h00-18h Session 2 – « Geosciences »

16h00-16h40 – **Invited**, Geir Ersland, “*Pore and core scale imaging of hydrates in porous Media*» University of Bergen - Norvège

16h40-17h00 – Mahnaz Aghajanloo, “*CO₂ Hydrate Saturation, Permeability and Injectivity in the Saline Environments: Effect of mean water activity*”, Delft University of Technology, Department of Geoscience and Engineering, Delft, Netherlands

17h00-17h20 – Atousa Heidari, “*Experimental Study of Hydrate Formation Kinetics and Stability Field in the Sea of Marmara*”, Geo-Ocean, Univ Brest, CNRS, Ifremer

17h20-17h40 – André Burnol, “*Changing Hydrate of CO₂ to an opportunity (CO₂-BHYS)*”, BRGM (French Geological Survey), France

17h40–18h00 – Art-Clarie Constant Agnissan, “*Overview of the HYDRACLAY project: Physico-chemical investigations of gas hydrates-bearing sediments by reproducing their natural geo-environment*”, Ifremer, Univ Brest, UMR Geo-Ocean, Plouzané, France

18h00-19h30 Poster session / Free time

Poster session

- Kelvin Chima, "Modelling the dynamics of methane hydrate systems in deep water sediments: A Case study of the Amazon and Nile deep-sea fans", Institut des Sciences de la Terre de Paris - Sorbonne Universités, UPMC, CNRS - France
- Souhaila N'mar, "CO₂ hydrate in porous media : a quantitative NMR method to detect formation and dissociation of hydrates", IFPEN, Rueil-Malmaison, France

❖ Diner at Moxy at 19h30

□ Wednesday 4th December

9h00-10h40 Session 3 – « Process Engineering »

- 9h00-9h40 – **Invited**, H.P. Veluswamy, "Carbon dioxide sequestration using gas hydrates - Effect of amino acids on CO₂ and CO₂-N₂ hydrate formation kinetics", Indian Institute of Technology Roorkee- Inde
- 9h40-10h00 – Sadain Zafar, "Influence of salt (NaCl) concentration and temperature on water recovery with CO₂ hydrates evidenced by in-situ Raman Spectroscopy", Laboratoire PhLAM, UMR 8523, Université de Lille France
- 10h00-10h20 – Angsar Serikkali, "Flue gas and desalination from seawater: thermodynamics and kinetic influence of salt and cooling rate", ENSMines Saint-Etienne, Univ Lyon, UMR 5307, Saint-Etienne, France
- 10h20-10h40 – Veronique Osswald, "Estimation of mass transfer coefficients with and without CO₂ hydrates in a stirred tank reactor", Université Paris Saclay, INRAE, Frise, Antony, France

❖ 10h40-11h10 Coffee break + Poster discussion (continuing)

11h10 – 12h30 Session 3 – (continuing) « Process Engineering »

- 11h10-11h30 – Michele Ciulla, "Development of Materials to Improve Hydrate Adhesion Performance in Subsea Appliances", University G. d'Annunzio of Chieti-Pescara - Chieti, Italie
- 11h30-11h50 – Leandro Saraiva Valim^{1,2}, "Comparative Assessment on Gas Hydrate Agglomeration at Different Scales", ¹ENS-Mines St Etienne, ²Petrobras, Rio de Janeiro - France
- 11h50-12h10 – Peyman Dehghani, "CO₂ Hydrate Nucleation Study: Novel High-Pressure Microfluidic System", IFPEN, IFP Energies nouvelles, Rueil-Malmaison, France
- 12h10-12h30 – Mohamad Abdallah, « X-ray micro-tomography analysis of natural gas hydrates crystals formed in the presence of anti-agglomerant additive », IFP Energies Nouvelles, IFP Energies Nouvelles - Rueil-Malmaison, France

❖ 12h30-14h30 Lunch at Moxy → Food Truck

14h30-15h30 Session 3 – (continuing) « Process Engineering »

- 14h30-15h10 – **Invited** Belkacem Samar, "How do anionic surfactants enhance the growth kinetics of methane hydrates ?", Univ. De Pau et des Pays de l'Adour, TotalEnergies, LFCR, Pau, France
- 15h10-15h30 – M. Wapperom, "Multiphase equilibrium calculations with hydrates using the Van der Waals-Platteeuw equation of state", Department of Geoscience and Engineering, TU Delft, Stevinweg 1, 2628 CN Delft, The Netherlands
- 15h30-15h50 – Rihab Khirallah, "Methodological approach for determining the rheological properties of CO₂ hydrates slurries", Université Paris-Saclay, INRAE, FRISE, 92761, Antony, France
- 15h50-16h10 – Houaria Boumaiza, «Phase equilibrium of gas hydrate crystals with food products», Université Paris-Saclay, INRAE, FRISE, 92761, Antony, France

❖ 16h10-16h40 Coffee break + Poster discussion (continuing)

16h40-18h20 Session 4 – « Molecular Sciences, part 1 (experimental): nucleation, formation in confined environment, impact of promoters»

16h40–17h20 **Invited** Robert Bauer, “Exploring the Clathrate Hydrate Formation Process”, DESY, Hamburg – Allemagne, Technische Universität Bergakademie Freiberg – Allemagne

17h20-17h40 – Víctor Ramirez Cerezo, “Rapid and efficient formation of binary and ternary hydrates in confined nanospace”, Laboratorio de Materiales Avanzados, Universidad de Alicante, Spain

17h40-18h00 – Yohan Lee, “Experimental Investigation on CH₄ Hydrate Formation Behaviour in Clay Sediments for CH₄-CO₂ Replacement”, ISM - Université Bordeaux- France

18h00-18h20– Dounya Frah, “Stockage d’hydrogène sous forme d’hydrates mixtes : effet de l’acide perchlorique et du confinement sur les équilibres thermodynamiques », IFPEN, Rueil-Malmaison, France

18h20-19h30 Discussion and Free time (Christmas market, Tour guides,...)

❖ **Diner at Moxy at 19h30**

□ Thursday 5th December 2024

9h00-10h00 Session 4 – (continuing) « Molecular Sciences, part 2 (experimental): structures, composition, kinetics »

9h00-9h20 – Rima Haidar, “Partition of CO₂ into clathrate hydrate cages: investigation by vibrational spectroscopy », PhLAM - Lille, France

9h20-9h40–Tomasz Poreba, “Hydrogen storage in C2 hydrogen hydrate”, Laboratory for Quantum Magnetism, EPFL Lausanne – Suisse

9h40-10h00 – Baptiste Bouillot, “Investigation of the crystallization kinetics of pure and mixed hydrates from mixtures of carbon dioxide and methane”, ENSMines Saint-Etienne, Univ Lyon, UMR 5307 LGF, Saint-Etienne

10h00-11h10 Session 4 – (continuing) « Molecular Sciences, part 3 (simulations): H-bonds perturbation, structures, interactions »

10h00-10h20– Yevgeniy Kviring, “Study of the interaction of supercooled water with glycine and NaCl”, UBFC, Laboratory ICB, UMR 6303 University of Bourgogne Franche Comté – France

10h20-10h40 – Nacer Idrissi, “Structural changes in water and CO₂ from ambient conditions to the supercritical state: Molecular dynamics simulation”, University of Lille, LASIRE Lille, 59000, France

❖ **10h40-11h00 Coffee break + Poster discussion**

11h00-12h00 Session 4 – (continuing) « Molecular Sciences, part 4 (simulations): Ab-initio MD, MC, DFT»

11h00-11h20– Loan Renaud, “Quantum Hydrogen Dynamics in the C2 Hydrate Phase Through Advanced Molecular Dynamics Simulations”, Institut de Minéralogie, de Physique des Matériaux et de Cosmochimie Sorbonne Université

11h20-11h40 – Victoire Meko Fotso, “Impact of an acidic promoter on the properties of clathrate hydrates for energy storage”, UTINAM, Univ Franche-Comté, Besançon, France

11h40-12h00 –Maxime Legrand, “Characterization of Diffusion in Clathrate Hydrates using coupled Ab Initio and Kinetic Monte Carlo methods”, UTINAM – Besançon, France

12h00-12h15 Discussion

❖ **12h15 Lunch at Moxy → Food Truck**

14h00 End of the “Journées Plénières du GdR Hydrates de Gaz” 2024