



PROGRAMME

Journées “Hydrates”

20-22 Novembre 2018

Institut des Sciences Moléculaires
Univ. Bordeaux - Bat A12 - ISM
351 Cours de la Libération, 33405 TALENCE Cedex

GDR2026 Hydrates de gaz

CNRS – IFREMER – ENSTA - Mines Paris Tech - BRGM - IFPEN - IRSTEA



WELCOME

We are pleased to welcome you for the 1st meeting of the French research consortium GdR2026 Hydrates at the University of Bordeaux. This event brings together leading experimental, theoretical, and computational scientists from among the unusually broad community of researchers interested in the various research areas of gas hydrates going from chemical and energy engineering to geosciences and astrophysics through physical-chemistry and thermodynamics. The issues addressed during this meeting concern major aspects of “hydrate sciences” such as hydrate/substrates interactions, thermodynamics, formation kinetics, cage occupancy and as well as formation at extreme conditions.

The workshop is divided into two parts. The first part (19-20 nov.) is dedicated to meetings of french research consortiums working on a common project (ANR, EU, etc.) in closed session. The second part (20-22 nov.) is the general meeting, gathering about 50 participants. Its scientific program contains about 30 presentations, including invited talks, oral contributions and poster presentations.

Organizing Committee

Arnaud Desmedt, ISM CNRS – Univ. Bordeaux
Karine Ndiaye, ISM CNRS – Univ. Bordeaux
Audrey Bourgeois, ISM CNRS – Univ. Bordeaux
Cyrielle Métais, ISM CNRS – Univ. Bordeaux

Scientific Committee

Baptiste Bouillot – LGF, UMR 5703 CNRS, Mines Saint-Etienne
Daniel Broseta – LFC-R UMR 5150 CNRS, Total, Univ. Pau
André Burnol – BRGM, Orléans
Christophe Coquelet – CTP, Mines ParisTech
Bertrand Chazallon – PhLAM UMR8523 CNRS Univ. Lille
Anthony Delahaye – Division des Génie des Procédés et Froid, IRSTEA, Antony
Arnaud Desmedt – ISM UMR5255 CNRS, Univ. Bordeaux
Christophe Dicharry – LFC-R UMR5150 CNRS, Total, Univ. Pau
Patrice Paricaud – UER de Chimie et Procédés, ENSTA, Palaiseau
Sylvain Picaud – UTINAM UMR6213 CNRS, Univ. Franche-Comté
Livio Ruffine – IFREMER, Brest
Anne Siquin – IFPEN
Anh-Minh Tang – Laboratoire Navier UMR8205 CNRS, Ponts Paristech
Gabriel Tobie – LPG UMR6112 CNRS, Univ. Nantes

DETAILED PROGRAM

Tuesday, November 20

12:30 Buffet and Registration **GENERAL MEETING**

14:15 **Welcome and Introduction**

14:30 **J. Schicks** (GFZ Potsdam, Berlin, Germany) « *Title to be announced* »

15:10 **A. Burnol** (BRGM, Orléans) *Le stockage du CO₂ dans les sédiments marins profonds: bilan et perspectives de la recherche en 2018.*

15:30 **B. Bouillot** (MINES, Saint-Etienne) *Experimental determination and modelling of cyclopentane hydrates equilibrium in the presence of salts*

15:50 **M. Pons** (LIMSI, Univ. Paris-Orsay) *Simulation numérique de la fonte d'hydrates dans un échangeur de chaleur*

16:10 **J.M. Simon** (ICB, Dijon / UTINAM, Besançon) *Guest Trapping and Selectivity within N₂, CO and mixed N₂-CO Clathrate Hydrates: a Grand Canonical Monte Carlo Study*

16:30 *Coffee Break*

17:00 **Flash presentation (4 min each) and posters session.**

- **V. Almeida** (MINES, Saint-Etienne). *Experimental investigation of gas hydrate plugging mechanisms in pipelines and the influence of the flow pattern.*
- **Q.-D. Le** (PhLAM, Univ. Lille). *Experimental set-up design for CO₂ capture and separation technology by gas hydrates crystallization.*
- **M. Lemaire** (PhLAM, Univ. Lille / ISM, Univ. Bordeaux). *Vapor deposition of nitrogen and water at low temperature and under 1 bar: the extreme conditions of Enceladus environment.*
- **S. Ho-Van** (MINES, Saint-Etienne) *Morphological Study of Cyclopentane Hydrates in Saline Water for Desalination Application.*
- **S. Maghsoodloo Babakhani** (MINES, Saint-Etienne). *A new experimental and modelling study on non-equilibrium crystallization of mixed gas hydrates involving hydrate volume and composition.*
- **A. Desmedt** (ISM, Univ. Bordeaux). *Spectroscopy of mixed gas hydrates: from selectivity to transport properties.*
- **C. T. Rodriguez** (PhLAM, Univ. Lille). *CO₂-based gas mixtures separation and capture using semi-clathrate hydrates.*

18:00 *Wine and Cheese Cocktail*

19:00 *Free time*

Wednesday, November 21

- 9:20 **P. Imbert** (TOTAL, Pau) *Indicateurs sismiques de présences d'hydrates de gaz dans les sédiments: ce qu'on sait, ce qu'on aimerait savoir.*
- 10:00 **F. Taleb** (IFREMER, Plouzané) *Investigation of the hydro mechanical behaviour of gas-hydrate bearing clayey sediments from the Gulf of Guinea using in-situ geotechnical measurements.*
- 10:20 *Coffee Break*
- 10:50 **A.M. Tang** (Laboratoire Navier, Univ. Paris Est) *Kinetics of methane hydrate formation and dissociation in sand sediment*
- 11:10 **M. Lemaire** (ISM, Univ. Bordeaux / PhLAM, Univ. Lille) *Influence of alkaline feldspars-surrogates on the formation kinetic and the selectivity of CO₂-N₂ mixed hydrates*
- 11:30 **F. Benmesbah** (IFREMER, Plouzané) *Etude cinétique de la formation et de la dissociation des hydrates de gaz en milieu poreux et milieu bulk*
- 12:00 *Lunch at restaurant "L'Alcala"*
- 14:30 **L. Bove** (Univ. di Roma "La Sapienza", Italy) *Guest dynamics in methane and hydrogen hydrates under high pressure*
- 14:50 **S. Ninet** (IMPMC, Univ. Sorbonne) *Ammonia hydrates under high pressure and high temperature: a new route to synthesize ionic/superionic compounds?*
- 15:10 **U. Ranieri** (IMPMC, Univ. Sorbonne / EPFL, Lausanne / ILL, Grenoble) *Fast methane diffusion at the interface of two clathrate structures*
- 15:30 *Coffee Break*
- 16:00 **A. Boufares** (ENSTA, Univ. Paris-Saclay) *Quantification of CO₂ in the liquid phase using infrared spectroscopy during hydrate formation/dissociation for cold storage and transport application*
- 16:20 **S. Desplanche** (ISM Univ. Bordeaux) *Microstructuration of a super-protonic conductor based on strong acid hydrates: a new electrolyte for micro-fuel cells.*
- 16:45 *Departure for social program:*
- 17:30 *Walking tour of Bordeaux*
- 20:30 *Conference Dinner at "Le Domaine de Raba"*

Thursday, November 22

9:00 **T.X. Le** (Laboratoire Navier, Univ. Paris Est) *Investigating the microstructure of synthetic methane hydrate-bearing sand sediments by using X-ray Computed Tomography*

9:20 **D. Atig** (UPPA, Pau) *Stressing and breaking methane hydrate shells at micron scales*

9:40 **C. Métais** (ILL, Grenoble / UTINAM, Besançon / ISM, Univ. Bordeaux) *Investigations of the impact of silica media on gas trapping selectivity within CO₂-N₂ mixed hydrate.*

10:00 *Coffee Break*

10:20 **B. Chazallon** (PhLAM, Univ. Lille) *Selectivity in CO₂-based mixed clathrate hydrates probed by Raman spectroscopy: influence of the structure, temperature and pressure*

10:40 **V. Ballenegger** (UTINAM, Besançon) *Cage occupancies of the nitrogen gas hydrate from Monte Carlo simulations with a refined N₂-H₂O pair interaction*

11:00 **Discussion and Concluding Remarks**

11:15 **End of General Meeting**

11:30 **CoPil GdR2026 Hydrates**

15:00 **End of CoPil**