

ICEP CCS/CCUS ワークショップ 2023

— 炭酸ガス分離・回収技術を中心に —

開催案内

2023年8月4日

一般財団法人石油開発情報センター

世界では、Covid-19 との闘いに終わりが見えてきつつあるものの、気候変動に起因した脱炭素への流れは加速化し、世界中の国家、社会、企業が 2050 年のネットゼロに向かって熱心度、本気度の濃淡はあれ、その取り組みを本格化しつつある最中、石油天然ガス開発業界は、これまでのビジネスモデルに大きな変革を求められています。言い換えれば、石油天然ガス開発業界は、今後、エネルギートランジションの流れの中で石油天然ガスの供給をある程度維持しつつ、CO₂ 排出の削減と合わせ石油天然ガスの生産量を削減していくことが求められています。

こうした事業環境が大きな転換を迎える中で、CCS (CCUS) が、CO₂ 排出量削減と炭化水素資源の生産・利用を両立させる手段として注目され、世界各地でその事業化が進められており、わが国でも、「CCS 事業法 (仮称)」の制定が政府決定され、また、独立行政法人エネルギー・金属鉱物資源機構 (JOGMEC) により候補事業が選定される等実装化が進みつつあります。

弊財団では、近年、このような状況を踏まえ、関係者の関心の高い CCS/CCUS 関連のビジネス情報を提供するセミナー、技術動向、最新技術を紹介するセミナー、また、事業化に係る法務的課題を解説するセミナー等を開催してきていますが、今回、CCS/CCUS 事業の中でも最もコストを要すると部門と言われる「炭酸ガス分離・回収」技術に焦点を当てたワークショップを下記のとおり開催することとしました。

本ワークショップでは、世界各地での数多くの CCS/CCUS 事業に参画している SLB 社 (旧シュルンベルジェ社) から専門家を講師として招聘し、「炭酸ガス分離・回収」技術に関する最新動向及び CCS 事業全般に関する最新のデジタル技術について解説し、参加者の皆様と様々な意見交換を行います。

皆様方におかれては、ご多用のこととは存じますが、多数の皆様にご参加いただきたくご案内申し上げます。

記

1. タイトル : ICEP CCS/CCUS ワークショップ 2023
— 炭酸ガス分離・回収技術を中心に —
2. 日時 : 2023 年 8 月 23 日 (水) 10:00~17:15 (ワークショップ)、
17:30-19:00 (交流会)
3. 会場 : エッサム神田 1 号館 2 階多目的ホール (ワークショップ)、5 階イ
ベント ホール 2 (交流会)
https://www.essam.co.jp/hall/access/#access_1
〒101-0045 東京都千代田区神田鍛冶町 3-2-2
TEL:03-3254-8787
4. 開催方法 : オンサイト方式
なお、止むを得ない事情でオンサイト参加がどうしても難し
い方々には、オンラインでの参加を検討しますので、参加申
し込みの際にその旨お申し出ください。
5. 参加費 : 無料
6. 言語 : 英語
7. お申込み : 以下の Google Form を活用いただき、オンラインで参加登録
願います。
[https://docs.google.com/forms/d/e/1FAIpQLSd2o9Qf55aGkasTuX
Zkkyu5vx5FLayY-i-vYrncaIHTv6QsLg/viewform](https://docs.google.com/forms/d/e/1FAIpQLSd2o9Qf55aGkasTuXZkkyu5vx5FLayY-i-vYrncaIHTv6QsLg/viewform)
参加登録された申し込みの皆様には、2023 年 08 月 21 日 (月)
に最終参加のご案内を配信します。
8. お申し込み期限 : 2023 年 8 月 18 日 (金) 18 : 00 です。
9. お問い合わせ先 : 一般財団法人石油開発情報センター研究部まで
e-mail : event@icep.or.jp
電話 : 03-4520-8661

ICEP CCS/CCUS ワークショップ 2023

— 炭酸ガス分離・回収技術を中心に — プログラム

日時：2023年8月23日（水）10:00～19:00

時間	プログラム（ワークショップ解説内容）
09:30	来場受付
10:00～ 10:15	ワークショップ進行・全体説明 <ul style="list-style-type: none"> ・ 高木 路子（副主任研究員、一般財団法人石油開発情報センター（ICEP）） 開会のご挨拶 <ul style="list-style-type: none"> ・ 鈴木 孔（理事長、ICEP）
10:15～ 11:45	<p>Moderator : Mr. Kaibin Qiu, Geomechanics Advisor / New Energy Business Manager</p> <p>Lecturer : Ph.D. Frank Zheng, Carbon Capture Director</p> <p>Topic 1 : The state-of-art carbon capture technology</p> <ol style="list-style-type: none"> 1. Main focuses and approaches for carbon capture technology development 2. Solvent chemistry 3. Absorption process and equipment 4. Sorbent materials 5. Adsorption process and equipment 6. Other technologies <p>Q&A</p>
11:45～ 11:50	Short break
11:50～ 13:20	<p>Lecturer : Ph. D. Frank Zheng</p> <p>Topic 2-1 : Review of the carbon capture technology for industry emissions</p> <ol style="list-style-type: none"> 1. Carbon capture for power generation 2. Carbon capture for cement production 3. Carbon capture for hydrogen project

	<p>Topic 2-2 : Carbon capture technology frontier and the way forward</p> <ol style="list-style-type: none"> 1. Frontier absorption technologies 2. Frontier adsorption technologies 3. Other frontier technologies 4. Way forward. <p>Q&A</p>
13:20～ 14:00	Lunch break
14:00～ 15:30	<p>Lecturer : Mr. Hirobumi Wada, Senior Process Engineer</p> <p>Topic 3 : Digital twin of capture and compression</p> <ol style="list-style-type: none"> 1. Technical challenges of carbon capture and compression operations 2. Construction of digital twin model of carbon capture and compressions 3 Case studies <p>Q&A</p>
15:30～ 15:35	Short break
15:35～ 17:05	<p>Lecturer : Ms. Marie Ann Giddins, Reservoir Engineering Advisor / Mr. Xingxing Cai, Digital Production Business Manager</p> <p>Topic 4-1 : Integrated CCS surface and subsurface modeling</p> <ol style="list-style-type: none"> 1. Dynamic simulation of CO₂ subsurface storage 2. Coupling surface, wells, and subsurface facilities 3 CCS integrated modeling examples <p>Topic 4-2 : Smart Operations for Carbon capture and compression</p> <ol style="list-style-type: none"> 1. Challenge of carbon capture and compression operation 2. Digital technology enable the carbon and compression operation 3. Key application scenarios 4. Case study and the way forward <p>Q&A</p>
17:05～ 17:15	<p>閉会のご挨拶/閉会</p> <p>・梶岡 雅俊 (会長、ICEP)</p>

17:15～ 17:30	交流会フロアへの移動
17:30～ 19:00	交流会（5階イベントホール2）

Speakers ・ 講演者 ・ 講師紹介



鈴木 孔（一般財団法人石油開発情報センター（ICEP）、理事長）

1975年に東北大学工学部を卒業。

1976年、石油公団（JNOC、2004年に独立行政法人石油天然ガス・金属鉱物資源機構に組織改編し2022年に独立行政法人エネルギー・金属鉱物資源機構（JOGMEC）に組織改編）入団。世界各地の石油・天然ガスの探鉱・開発プロジェクトを支援し、その後、日本における石油・LPG（液化石油ガス）の国家備蓄基地の建設を担当し、日本のエネルギー資源の安定供給に貢献。

2009年にJOGMECの理事（石油開発技術本部長）に就任し、2012年に退任。

2012年、一般財団法人石油開発情報センター（ICEP）の理事長に就任し、その運営に直接携わり、賛助会員企業他に対する世界の探鉱・開発事業に関連した情報の提供、石油・天然ガス産出国からVIPや経験豊富な専門家を招いたセミナー、フォーラム及びワークショップの開催並びに地質地科学的な調査の受託実施など、10年以上にわたりICEPの活動を主導。



Frank Zheng

Carbon Capture Director, Schlumberger

Personal Statement

Frank Zheng leads the strategic development of carbon capture technologies for Schlumberger. As a Chemical Engineer by training, Frank has over 30 years of experience in plant operations, EPC, and R&D. He has worked in the chemical, refining, and the last 16 years, upstream oil and gas. His focus is process development and optimization. Starting in 2021, Frank led the efforts of establishing SLB's carbon capture technologies for both point source emissions and direct air capture.

Education & Training

- Ph.D., Chemical Engineering, Texas A&M University, USA, 1996.
- B.S., Chemical Engineering, East China University of Science and Technology, China, 1988.

Recent Work Experience

2022–Present Carbon Capture Director

- Leading the technology development of Carbon Capture.

2017–2022 Technology Center Manager, Process Systems Technology Center

- Leading the technology development for upstream oil and gas processing.

- 2014–2016 Director of Gas Technology Development, Process Systems
- Leading the technology development for upstream and midstream gas processing. The focus areas included acid gas treatment, gas dehydration, and MEG reclamation.
- 2012–2014 Director of Product Development, Process Systems
- Leading the technology development for upstream oil and gas processing. The focus was on separation technologies for oil, water and gas.
- 2009–2012 Manager of R&D–Produced Water and Enhanced Oil Recovery, Process Systems
- Leading the technology development for produced water treatment and the separation of produced stream from enhanced oil recovery. The focus was on the produced water treatment from the enhanced oil recovery.
 - Leading the contract studies for the processing of the produced stream from the enhanced oil recovery.
- 2007–2009 Senior Development Engineer–Enhanced Oil Recovery
- Conducted the testing work for the development of separation technologies for produced stream from enhanced oil recovery.
- 1988–2007 Various positions in Engineering, R&D, and Project Management

**Kaibin Qiu Geomechanics Advisor /
New Energy Business Manager, Schlumberger**



Personal Statement

Kaibin Qiu is currently a Geomechanics Advisor responsible for coordinating and providing geomechanics services both externally to clients in China, Japan and Korea and internally to Schlumberger for well planning and well construction completions, reservoir engineering, stimulation, and enhanced recovery applications. He has more than 20 years of experience in the industry and has worked on many geomechanics projects in Malaysia, Iran, Egypt, Libya, India, Indonesia, Japan and China. In recent years, he has been actively involved in the application of reservoir geomechanics for exploration and development on HPHT, deep water, tight gas, shale gas, and methane hydrate and underground gas storage. Now Kaibin is also actively expanding the application of geomechanics to new energy initiatives such as geothermal and carbon capture and storage (CCS) and playing a key role in driving business growth on new energy. Kaibin Qiu has been acting as technical director for multiple CCS projects and developed and delivered multiple carbon capture, utilization, and storage (CCUS) courses to companies in Korea, Japan, and China.

Kaibin has authored over 40 technical papers and is currently the Associate Editor of the SPE Journal and Technical Review Editor of multiple SPE Journals.

Kaibin Qiu is a member of SPE JPT Editorial Committee.

Education & Training

- M.E., Geotechnical Engineering, Tsinghua University, China, 2001.
- B.E., Hydraulic and Hydropower Engineering, Tsinghua University, China, 1996.

Recent Work Experience

- 2021–Present Geomechanics Advisor/New Energy Business Manager (China, Korea, and Japan)
- As the leading geomechanics expert and new energy business manager in CHG GeoUnit (covering China, Korea, and Japan), responsible for growing the overall geomechanics and new energy business.

- 2012–2021 Principal Geomechanics Engineer (China, Korea, and Japan)
- As the leading geomechanics expert in Far East Asia (FEA) geomarket, responsible for the overall geomechanics business in China, Japan and Korea.
 - Led the team to deliver the first large-scale acid gas storage feasibility study for EUG.
- 2010–2012 Senior Geomechanics Engineer (China, Korea, and Japan)
- Coordinate and provision of geomechanics services in China, Japan and Korea on wellbore stability analysis and drilling optimization, sand management solution, underground gas storage, pore pressure prediction through seismic data and basin modeling, gas shale geomechanics and 3D geomechanics including compaction and subsidence evaluation, well integrity evaluation and coupled geomechanics reservoir simulation.
- 2008–2010 Geomechanics Product Champion (Data and Consulting Services H.Q.)
- Responsible for developing Schlumberger geomechanics product/service and their introduction to the marketplace in accordance with the company's strategy and maximization of the commercial impact by adding value to our customers. Directed the development and commercialization of geomechanics software.
- 2005–2008 Senior Geomechanics Specialist (Libya)
- Coordinate and provide geomechanics services in Libya on wellbore stability analysis, drilling optimization, fracture permeability evaluation, field-wide integrated geomechanics solution and sand management solution.
 - Experienced in real-time pore pressure prediction, had been extensively involved in real-time pore pressure prediction around the world.
- 2004–2005 Geoscientist (Brunei, Malaysia, and Philippines)
- Provision of pore pressure prediction (including real-time) and geomechanics services for various major oil companies.
- 2001–2004 Geomechanics Software Engineer (BGC, Beijing)
- Development of Geomechanics software widely used in Schlumberger.



Hirobumi Wada

Senior Process Engineer Schlumberger

Personal Statement

He is a process (chemical) engineer with experience in plant operation, optimization, and revamping of refinery units, such as Powerformer, and FCC, especially hydrogen plants, from Front End Design (FEED) to construction and commissioning.

Education & Training

- B.Sc., Applied Chemistry (Catalyst), Waseda University, Japan, 1991.

Recent Work Experience

- 2023 - Present Tech-Sales of Symmetry (CHG - China, Korea, and Japan)
- Leading Process Engineering Business Development related to New Energy (Hydrogen, Ammonia), Oil refinery, and Chemicals.
- 2020 - 2023 Fuel Cell Development Engineer (Kyocera Corporation - Japan)
- Implementation of Partial oxidation type SOFC (Solid Oxide Fuel cell),

- coordination with producing company in U.S.
- Conceptual design for the plant implementation for Hydrogen generation based on Thermochemical decomposition of water.
- 2016 - 2020 Senior Deputy Manager of Process Engineering Department (JGC Corporation - Japan)
 - Area lead Engineer for Chemical Plant project, producing High Heat Resistant Polyamide, working with overseas affiliated company in Philippines.
 - Process Lead Engineer for proposal work of Methionine and HCN plant, working with overseas affiliated company in U.S.
 - Enhance the capability of overseas affiliated companies (7 oversea companies) through activities such as workshops. Organize work groups to support these affiliated companies.
 - Supervise Process simulation/control group and laboratory group.
- 2014 - 2016 Manager of Process Department of JGC Vietnam (JGC Vietnam - Vietnam)
 - Supervised 16 process engineers and handled Units in 8 medium-sized projects such as the Amine Recovery Unit, Indirect Alkylation Unit, Sulfur Recovery Unit, Oil/Chemical Terminal, etc.
 - Study of 3rd turnaround preparation of RFCC (Binh Son R&P Co. Ltd.) – worked as Project Manager to materialize the Project, coordinate with the Client, and arrange the required specialists, etc.
 - SRU-II (BSR) - Commissioning Manager of Sulfur Recovery Unit (capacity: 13 tons per day), led the team to achieve performance test run successfully.
- 2010 - 2014 EPC Process Lead Engineer (JGC Corporation - Japan)
 - Lead Engineer for KNPC Clean Fuels Project handling the Hydrodesulphurization Unit. Supervised ten engineers in designing an Amine Recovery Unit and a Hot Oil Cooling Unit. Coordinated interconnecting pipeline design with two joint venture contractors.
 - Area Lead Engineer for PDVSA Project. Handled Hydrocracker Unit by supervising five young engineers.
- 2003 - 2010 EPC Process Engineer (JGC Corporation - Japan)
 - Coordinated P&ID work for SONATRACH Gassi Touil Project.
 - Assistant Lead Engineer for Hydro Desulfurization Unit for a Cosmo Oil Co. Project.
 - Assistant Lead Engineer for HOFCC Unit (Petro Rabigh) gas concentration section.
 - Worked on Diesel HDS Unit and Hydrogen Recovery Unit for Tonen General Sekiyu K.K. Project
 - Worked on TAME (tert-Amyl Methyl Ether) Unit, Gasoline HDS Unit, and Indirect-Alkylation

Marie Ann Giddins

Reservoir Engineering Advisor, [Schlumberger](#)



Personal Statement

I provide technical advice on advanced reservoir simulation applications, workflows, and integrated studies for clients and internal SLB users. My current focus is on complex reservoir engineering models, including Enhanced Oil Recovery (chemical EOR, miscible injection, and thermal studies), unconventional reservoirs, non-Darcy flow in gas condensate fields, and new energy projects such as CO2 storage studies. I also advise on simulator performance, gridding and upscaling, uncertainty, and optimization. I mentor and coach trainees and

experienced engineers at all stages of personal development.

Education & Training

- MSc, Operational Research, University of Sussex (United Kingdom), 1978.
- Bachelors, Mathematics, University of Oxford (United Kingdom), 1977.

Recent Work Experience

2014 – Present Advisor, Reservoir Engineering (Abingdon, United Kingdom)

- Providing specialist advice on difficult reservoir simulation problems, with a focus on Enhanced Oil Recovery.

2002 – 2008 Principal Consultant (Abingdon, United Kingdom)

- Solving complex problems in reservoir simulation
- Providing support and workflow consultancy for simulation pre- and post-processing.
- Testing and support of FloGrid software for reservoir modeling and simulation gridding.
- Coordinator for commercialization activities for interactive software products.
- Advisor and mentor for reservoir simulation engineers at Abingdon Technology Center.
- Manager of the guest testing program for interchange of engineers between Abingdon and Schlumberger offices in the field.
- University liaison, supervision of MSc students.

2001 – 2002 Software Métier Manager (Abingdon, United Kingdom)

- The management role covers People & Training, Process & Quality, as well as Technology & Tools for the software métier community.

Xingxing Cai

Digital Production Business Manager, Schlumberger



Personal Statement

Xingxing Cai is currently the digital production business development manager in SLB CHG geounit (covering the business in China, Japan, and Korea), responsible for production engineering, flow assurance, process engineering, digital oil/gas field application (IIoT, edge computing, and digital twins). He has 12 years in the oil and gas industry and has done many digital production projects. Xingxing is also actively involved in CCS and hydrogen business development and exploring digital solutions for CCS and new energy applications.

Education & Training

- M.E., Reservoir Engineering, Southwest Petroleum University (China), China, 2011.
- B.E., Petroleum Engineering, Southwest Petroleum University (China), China, 2008.

Recent Work Experience

2020 – Present Digital Production Business Manager (CHG - China, Korea, and Japan)

- As the business development manager for digital products in CHG GeoUnit (covering China, Korea and Japan), responsible for overall digital production engineering and operation business.

2018 – 2019 Senior Reservoir Engineer and team leader for digital production engineering in China

- As the team leader, leading production, drilling, and economics technical team in China geomarket, responsible for digital production project delivery and software technical support in China.

2011 – 2018 Reservoir Engineer(CHG- China, Korea, and Japan)

- As the reservoir engineer in the service delivery team, providing reservoir simulation software technical support to customers in China, instructing reservoir simulation courses externally, including Black oil simulation, streamline simulation, composition simulation, integration simulation, etc.



相岡 雅俊 (一般財団法人石油開発情報センター (ICEP) 会長)

1968年に東京大学工学部卒業。

1968年、日本の石油・天然ガス開発事業における先駆者的企業である帝国石油株式会社に入社。

入社後は、国内の油田及び天然ガス田における生産・操業現場での実務、最先端技術の研究開発及び海外での探鉱・開発プロジェクトなどを担当し、2005年に帝国石油株式会社の社長に就任。

その後、日本の石油・天然ガス開発業界の再編・強化の過程において、2006年、国際石油開発帝石ホールディングス株式会社を設立し、代表取締役役に就任。

2008年、国際石油開発帝石ホールディングス株式会社と帝国石油株式会社が合併し、国際石油開発帝石株式会社が誕生。同社の代表取締役役に就任。

2015年以降、国際石油開発帝石株式会社（2021年に株式会社 INPEX へ社名変更）の相談役を務め、民間企業における長期にわたるビジネス経験をもとに2013年に一般財団法人石油開発情報センター (ICEP) の会長に就任。

以上