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## **IACC-ICCU Conference Programme**

### **International Association for Carbon Capture Conference 2024**

- *Supporting Carbon Capture Science and Technology (CCST)*

**Topic:** Integrated CO<sub>2</sub> Capture and Utilisation

**Date:** 3 January 2024

**Organiser:** International Association for Carbon Capture (IACC)

**Host organiser:** Queen's University Belfast

#### **Co-organiser:**

- Columbia University in the City of New York,
- East China University of Science and Technology,
- National University of Singapore,
- University of the Basque Country UPV/EHU
- University of Naples Federico II
- Khalifa University of Science and Technology

**Chair:** Dr Chunfei Wu, Queen's University Belfast

#### **Co-chair:**

- Dr Ludovic Dumeé, Khalifa University of Science and Technology, UAE
- Professor Robert (Bob) Farrauto, Columbia University in the City of New York, USA
- Professor Juan R. González-Velasco, University of the Basque Country UPV/EHU, Spain
- Professor Jun Hu, East China University of Science and Technology, China
- Professor Sibudjing Kawi, National University of Singapore, Singapore
- Professor Fabrizio Scala, University of Naples Federico II, Italy

**Conference type:** Virtual

**Contact email:** [c.wu@qub.ac.uk](mailto:c.wu@qub.ac.uk)

#### **Organisation committee:**

- Dr Bo Jin, Hunan University
- Professor Changlei Qin, Chongqing University
- Dr Hongman Sun, China University of Petroleum (East China)
- Dr Hui Zhou, Tsinghua University
- Professor Jun Hu, East China University of Science and Technology
- Dr Shuzhuang Sun, Zhengzhou University
- Dr Xiangkun Cao, Massachusetts Institute of Technology
- Mr Yimin Shao, The University of Edinburgh
- Dr Yongqing Xu, Tsinghua University
- Mr Yuan Zhu, Queens University Belfast
- Miss Yuanyuan Wang, Queens University Belfast
- Dr Chunfei Wu, Queens University Belfast
- Professor Haiping Yang, Huazhong University of Science and Technology



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## **IACC-ICCU overall programme arrangement**

<b>UK time (03 Jan 2024)</b>				
<b>09:00</b>	Opening			<a href="#">Main meeting room</a>
<b>09:05</b>	Plenary 1			<a href="#">Main meeting room</a>
<b>09:50</b>	Keynote A1 and A2	<a href="#">Main meeting room/Parallel Room A</a>	Keynote B1 and B2	<a href="#">Parallel Room B</a>
<b>10:30</b>	Oral presentations	<a href="#">Main meeting room/Parallel Room A</a>	Oral presentations	<a href="#">Parallel Room B</a>
<b>11:18</b>	Break		Break	
<b>11:30</b>	Keynote A3 and A4	<a href="#">Main meeting room/Parallel Room A</a>	Keynote B3 and B4	<a href="#">Parallel Room B</a>
<b>12:10</b>	Oral presentations	<a href="#">Main meeting room/Parallel Room A</a>	Oral presentations	<a href="#">Parallel Room B</a>
<b>13:40</b>	Plenary 2			<a href="#">Main meeting room</a>
<b>14:20</b>	K5			<a href="#">Main meeting room</a>
<b>14:40</b>	Awards and closing			<a href="#">Main meeting room</a>

### **Free conference registration**

<https://science-event.com/event/conference-iacc-iccu-conference/>

### **Optional registration with fees (£100)/donation to IACC**

<https://buy.stripe.com/4gwbK3825dRhaDS8wz>



Scan to pay



## **Awards:**

- The IACC-ICCU conference will provide 10 Excellent IACC Presentation awards to speakers (IACC certificate only)
- Another six IACC-ICCU awards (£50 each and a certificate) will be provided from an online raffle event. The awardees will be randomly picked from conference participants using online software.

Please register for the conference (<https://science-event.com/event/conference-iacc-iccu-conference/>) to participate in this raffle event.



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Speakers please use **TEAMs**, participants can use **TEAMs or Koushare**.

1)

**Main room and parallel room A TEAMs link:**

[https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_ZTdMzG5NzAtYwQwMi00NGU4LTlIMjMtYzZIMWY2MDU1ZjM4%40thread.v2/0?context=%7b%22Tid%22%3a%22eaab77ea-b4a5-49e3-a1e8-d6dd23a1f286%22%2c%22Oid%22%3a%2251d684d7-fec6-4c0d-9539-b9fe19032910%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZTdMzG5NzAtYwQwMi00NGU4LTlIMjMtYzZIMWY2MDU1ZjM4%40thread.v2/0?context=%7b%22Tid%22%3a%22eaab77ea-b4a5-49e3-a1e8-d6dd23a1f286%22%2c%22Oid%22%3a%2251d684d7-fec6-4c0d-9539-b9fe19032910%22%7d)

**Parallel room B TEAMs link:**

[https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_MjY2M2VIMTMtMTJjMy00ODZiLTk2NWUtMDg2ZTIyNzc5OTgw%40thread.v2/0?context=%7b%22Tid%22%3a%22eaab77ea-b4a5-49e3-a1e8-d6dd23a1f286%22%2c%22Oid%22%3a%2251d684d7-fec6-4c0d-9539-b9fe19032910%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MjY2M2VIMTMtMTJjMy00ODZiLTk2NWUtMDg2ZTIyNzc5OTgw%40thread.v2/0?context=%7b%22Tid%22%3a%22eaab77ea-b4a5-49e3-a1e8-d6dd23a1f286%22%2c%22Oid%22%3a%2251d684d7-fec6-4c0d-9539-b9fe19032910%22%7d)

2)

**Main room and parallel room A Koushare link:**



<https://www.koushare.com/lives/room/209672>

**Parallel room B Koushare link:**



<https://www.koushare.com/lives/room/125400>



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## Detailed programme

### Main meeting room

UK Time		Chair:	Dr Yeshui Zhang
		Speaker	Title
9:00-9:05		Chunfei Wu	Conference Opening
9:05-9:45	P-1	Professor Fabrizio Scala	CO <sub>2</sub> capture and catalytic methanation over dual function materials in a twin fluidised bed reactor

### Main meeting room/parallel room A

UK Time		Chair:	Professor Fabrizio Scala
		Speaker	Title
9:50-10:10	KA-1	Bo Jin	Chemical looping CO <sub>2</sub> capture and in-situ conversion: a promising platform for green and low-carbon industry transition
10:10-10:30	KA-2	Stefano Cimino	Sulfur tolerance and self-regeneration mechanism of Li-Ru/Al <sub>2</sub> O <sub>3</sub> DFM during the integrated CO <sub>2</sub> capture and methanation
		Chair	Dr Changlei Qin
10:30-10:42	OA-1	Zouhair Boukha	La-modified hydroxyapatite-based DFMs: Preparation, characterisation and performance in the ICCU-methanation process
10:42-10:54	OA-2	Unai De La Torre	Lanthanum partial substitution by basic cations in LaNiO <sub>3</sub> /CeO <sub>2</sub> precursors to develop new generation DFMs for ICCU technology



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10:54-11:06	OA-3	Elena Gómez Bravo	Modeling the CO <sub>2</sub> hydrogenation to CH <sub>4</sub> for application in the Integrated Carbon Capture and Utilization (ICCU)
11:06-11:18	OA-4	Jie Chu	Comparative study on integrated CO <sub>2</sub> capture and conversion performance of Ni-Na <sub>2</sub> ZrO <sub>3</sub> bifunctional materials
11:18-11:30			<i>Break</i>
		<b>Chair</b>	<b>Dr Bo Jin</b>
11:30-11:50	KA-3	Nannan Sun	Continuous decarbonisation of flue gas by integrated carbon capture and conversion to methane
11:50-12:10	KA-4	Changlei Qin	Reaction characteristics and technical analysis of Integrated CO <sub>2</sub> capture and methanation
12:10-12:22	OA-5	Chae Jeong-Potter	Modified Cu-Zn-Al mixed oxide dual function materials enable reactive carbon capture to methanol
12:22-12:34	OA-6	Shuzhuang Sun	Integrated CO <sub>2</sub> capture and hydrogenation using transition-metal free dual functional materials
		<b>Chair</b>	<b>Dr Shuzhuang Sun</b>
12:34-12:46	OA-7	Boyu Li	Amidation-Reaction Strategy Constructs Versatile Mixed Matrix Composite Membranes Towards Efficient Volatile Organic Compounds Adsorption and CO <sub>2</sub> Separation
12:46-12:58	OA-8	Jizhou Wu	Research on the Route of Carbon Capture Technology for New Pollutants
12:58-13:10	OA-9	Xiao Feng	Controlled synthesis of defective MOFs for separation



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13:10-13:22	OA-10	Qi Huang	Photo responsive porous materials for Low energy CO <sub>2</sub> capture and conversion
13:22-13:35	OA-11	Hua Yang	Kinetics investigation on iron-based oxygen carrier aided oxy-fuel combustion of demineralized rice husk coke

### Parallel Room B

UK Time		Chair	Professor Juanra Gonzalez
		Speaker	Title
9:50-10:10	KB-1	Xiangyang Liu	Carbon dioxide capture and energy storage system for coal-fired power plant
10:10-10:30	KB-2	Vincenzo Spallina	Enabling blue hydrogen production via chemical looping reforming: technology scale up and process feasibility
		Chair:	Professor Yangping Yang
10:30-10:42	OB-1	Muhammad Nadeem Shaheen	Useful uses of carbon in environment
10:42-10:54	OB-2	Yusak Hartanto	Chitosan-coated polyvinylidene fluoride biocatalytic gas-liquid membrane contactor for carbon capture application
10:54-11:06	OB-3	Omnya Al-yafiee	Direct Air Capture (DAC) Vs. Direct Ocean capture (DOC)
11:06-11:18	OB-4	Pablo Comendador Morales	Parametric study of the sorption enhanced steam reforming of biomass fast pyrolysis volatiles
11:18-11:30			<i>Break</i>



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		<b>Chair</b>	<b>Dr Jinmei Xu</b>
<b>11:30-11:50</b>	<b>KB-3</b>	<b>Yan Liu</b>	<b>Artificially enhanced Tibetan geological carbon sink: The only way to address climate crisis rapidly</b>
<b>11:50-12:10</b>	<b>KB-4</b>	<b>Yafei Guo</b>	<b>Recent Advances in Ni-based Dual Function Materials for Integrated CO<sub>2</sub> Capture and Conversion</b>
<b>12:10-12:22</b>	<b>OB-5</b>	<b>Ziwen Xiong</b>	<b>Prediction of carbon emissions based on machine learning of coal-fired power plants</b>
<b>12:22-12:34</b>	<b>OB-6</b>	<b>Yangna Luo</b>	<b>Modulation of the performance of CO<sub>2</sub> electrocatalytic reduction to syngas over copper-based bimetallic catalysts</b>
		<b>Chair</b>	<b>Dr Yaofei Guo</b>
<b>12:34-12:46</b>	<b>OB-7</b>	<b>Rajashree Borgohain</b>	<b>A review on the conversion of CO<sub>2</sub> to hydrocarbon fuel using bio-inspired hybrid photocatalyst: A green and sustainable route for CO<sub>2</sub> utilisation</b>
<b>12:46-12:58</b>	<b>OB-8</b>	<b>Dr Syed Ali Ammar Taqvi</b>	<b>Energy, exergy, economic, environment, exergo-environment based assessment of amine-based hybrid solvents for natural gas sweetening</b>
<b>12:58-13:10</b>	<b>OB-9</b>	<b>Hushan Chand</b>	<b>Facile Low-Temperature Synthesised Novel Carbon Nitrides for Efficient Carbon Dioxide Conversion into Value-Added Chemicals</b>
<b>13:10-13:22</b>	<b>OB-10</b>	<b>Chang Gao</b>	<b>Unravelling the Effect of H<sub>2</sub>O and O<sub>2</sub> in Flue Gas on Integrated Carbon Capture and Dry Reforming of Methane</b>
<b>13:22-13:35</b>	<b>OB-11</b>	<b>Junjie Zhang</b>	<b>Biomass based porous carbon for CO<sub>2</sub> adsorption and electrocatalytic conversion</b>

[Main meeting room](#)





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<b>UK Time</b>		<b>Chair</b>	<b>Professor Jun Hu</b>
		<b>Speaker</b>	<b>Title</b>
<b>13:40-14:20</b>	<b>P-2</b>	<b>Professor Daryl Williams</b>	<b>Metrics for Assessing Adsorbent Performance for Gas Phase Carbon Capture</b>
<b>14:20-14:40</b>	<b>KA-5</b>	<b>Wen Liu</b>	<b>Mechanistic and kinetic investigation of methanation on Ni/CaCO<sub>3</sub> dual functional materials</b>
<b>14:40-14:50</b>		<b>Chunfei Wu</b>	<b>Raffle event, Awards and Closing</b>