Cell Symposia

Cell Symposium: Advancing Catalysis for C1 Chemistry

碳一分子催化化学国际学术研讨会

CONFERENCE PROGRAMME

Cell Press

Dalian Institute of Chemical Physics, CAS

July 23-25, 2021 — Dalian, China

Cell Press publishes over 50 scientific journals across the life, physical, earth, and health sciences, both independently and in partnership with scientific societies. Our story began over 45 years ago with the journal Cell and a commitment to publishing exciting biology. Today, we are bringing our editorial excellence, commitment to innovation, unparalleled reach and visibility, and passion for advocacy to all areas of scientific exploration as we work to publish and share science that inspires.

Dalian Institute of Chemical Physics (DICP) is located in the beautiful port city of Dalian, China. Since its founding in 1949, DICP has built up an impressive portfolio of achievements in the basic and applied sciences that have directly impacted the economic and technological development of China. Traditional areas of excellence at DICP include catalysis, chemical engineering, chemical lasers, molecular reaction dynamics, organic synthesis, modern chromatographic techniques and biotechnology.

DICP is composed of eight laboratories, each having unique research approaches and imperatives. While having distinct and diverse capabilities, technologies and equipment, all of the laboratories work together in unison to accomplish important national directives.

DICP is strongly focused on addressing challenges related to sustainable energy through cutting-edge, collaborative research in all of its laboratories. With a tradition of excellence in basic and applied research and interdisciplinary innovation, DICP is poised to continue to make important advances in a number of research fields it is placing special emphasis on energy-related research, including the development of cutting-edge theories and technologiesfor optimal fossil energy use, high-efficiency chemical energy conversion and renewable energy to meet national strategic and global needs.

Cell Symposia

Conference: Cell Symposium - Advancing Catalysis for C1 Chemistry

会议名称：碳一分子催化化学国际学术研讨会

Organization（主办单位）

Cell Press

Dalian Institute of Chemical Physics, CAS

细胞出版社

中国科学院大连化学物理研究所

Date（日期）

July 23-25, 2021

2021年7月23日-25日

Conference Location（会议地点）

Dalian Institute of Chemical Physics, CAS, 457 Zhongshan Road

中国科学院大连化学物理研究所（大连市中山路457号）

Organization

Cell Press

Dalian Institute of Chemical Physics, CAS

Organizers

Xinhe Bao, *University of Science and Technology of China*
Dalian Institute of Chemical Physics, CAS

Dehui Deng, *Dalian Institute of Chemical Physics, CAS*

Robert Eagling, *Editor-in-Chief, Chem*

Steve Cranford, *Editor-in-Chief, Matter*

Fenglin Liao, *Senior Scientific Editor, Chem*

Jiqing Sun, *Scientific Editor, Matter*

Yan Li, *Scientific Editor, Cell Reports Physical Science*

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Lin Ye, *Fudan University, China*

Yifu Yu, *Tianjin University, China*

Chang Yu, *Dalian University of Technology, China*

Yan Zhu, *Nanjing University, China*

Welcome Letter

Dear Friends and Colleagues,

It is with great pleasure that we welcome you to beautiful Dalian and our anticipated Cell Symposium on Advancing Catalysis for C1 Chemistry.

All worthwhile events start with a key idea. Advancing catalysis for C1 chemistry is playing a critical role in our global transformation to a carbon neutral world driven by sustainable energy. The recent wealth of information on efficient catalyst design, new catalytic pathway and emerging characterization methods makes this an exciting time to convene as a community and to discuss the future development of C1 chemistry. It is the very definition of a scientific challenge with societal impact, requiring collaborative solutions.

With this goal of collaboration and idea-sharing, around but not limited to C1 chemistry, we are delighted to feature an exceptional program filled with speakers sharing the same sustainable goals, whose work spans a diverse range of catalysis, from thermal-, electro- to photo-catalysis fields. Our aim is to provide an active forum in which interdisciplinary discussions will promote cooperativity, catalyze new ideas, and accelerate progress in related technological solutions. We invite all participants to be active and join the "reaction".

Cell Symposia were conceived in 2010 to foster scientific advancement on a global scale by providing an evolving and flexible forum that promotes interdisciplinary thinking, idea generation and provides an environment that serves as a catalyst for idea exchange among scientists in all stages of their careers. This is only our second Cell Symposium in the physical sciences since Chem was launched in 2016, with our first event being held in Xiamen in 2019. One of our goals for the Cell Symposia series is to maximize the opportunity of our delegates to network with each other, our speakers, as well as Cell Press editors. As journals continue to grow at Cell Press, we are hoping to continue and expand these successful events. We hope that this free-flowing exchange of ideas will help to develop your research and lead to prosperous collaborations in the future.

To stimulate dialogue, we've included plenty of time in the program for discussion after each talk, as well as during the opening drinks reception, poster sessions, and our "Meet the Speakers" dinner on Saturday evening! The poster and oral sessions, drawn from our international call for abstracts, promise to be a melting pot of ideas and a great place to forge collaborations with leading investigators of today and the near future.

We would like to thank everyone who has worked diligently to organize this symposium, especially our speakers and the Elsevier conference organization staff. We are also very grateful to our generous sponsors.

We look forward to an exciting meeting that promises great scientific debate, enjoyable social interaction, and lasting connections for your research and career. We very much hope you enjoy this symposium and your visit to Dalian!

Best wishes,

Xinhe Bao, *Dalian Institute of Chemical Physics, China*
Dehui Deng, *Dalian Institute of Chemical Physics, China*
Robert Eagling, *Editor-in-Chief, Chem*
Steve Cranford, *Editor-in-Chief, Matter*
Fenglin Liao, *Senior Scientific Editor, Chem*
Jiqing Sun, *Scientific Editor, Matter*
Yan Li, Scientific Editor, *Cell Reports Physical Science*

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Cell Symposium: Advancing Catalysis for C1 Chemistry

碳一分子催化化学国际学术研讨会

一、会议时间地点

会 议 时 间	2021年07月23日-25日
会 议 地 点	中国科学院大连化学物理研究所

二、会议须知

为确保您和他人在会议期间的人身及财产安全，保证会议的顺利进行，请您注意以下事项：

1. 请勿携带易燃、易爆化学品及充压容器进入会场及酒店；

2. 首次进入会场时，请您至注册台签到并领取资料包（领取资料包后方可获得餐券，餐券请妥善保管，过期无效，遗失不补）。会议期间，请您随身佩戴胸牌；

3. 进入会场前，请先熟悉会场环境、安全出口和疏散通道，一旦发生紧急情况，请听从工作人员指挥，有序、快速撤离危险区域；

4. 7月份天气炎热，请注意饮食卫生， 如有不适，请尽快与会务组联系；

5. 出发前请注意查看天气预报，增减所带衣物；

6. 贵重物品请自行妥善保管；

7. 会场附近已设置吸烟区，请勿在会场及其他禁烟场所吸烟；

8. 进入会场后，请将移动电话设置为静音，请勿在会场内接打电话；

9. 公共场合务必佩戴口罩；

10. 会议志愿者统一穿白色 T 恤衫（胸前印制大会logo），佩戴黄色带子胸牌，为参会代表提供服务；

11. 墙报粘贴地点及时间：

（1）墙报编号：P-01~P-98

（2）地点：大连化物所会议中心二楼

（3）张贴时间（自行粘贴）：2021年7月23日12:00-14:00

（4）提示：如2021年7月25日17:30后未及时取下，会务组将自行处理。

三、会议防疫要求

为减小风险，请各位参会人员严格按照以下事宜进行参会

（1）云南省瑞丽市的常驻人口，不建议参加此次会议；

（2）非云南省常驻人口，会期前14天内（7月8日及以后）往返过云南省瑞丽市地区的参会人员（以行程码为准），不建议参加此次会议；

（3）来连前，请确认体温正常，无任何发热、咽喉痛、味觉嗅觉失常等不适症状；

（4）来连前，请填写线上防疫信息收集表，确认无误后方可来连参会；

（5）会议期间，从指定酒店到会场实行班车制度，乘车人员在出发前，进行体温测量，且乘车时务必全员带上口罩；

（6）会场门口放置着应急口罩及消毒液，参会人员如有需要可联系现场的工作人员领取使用；

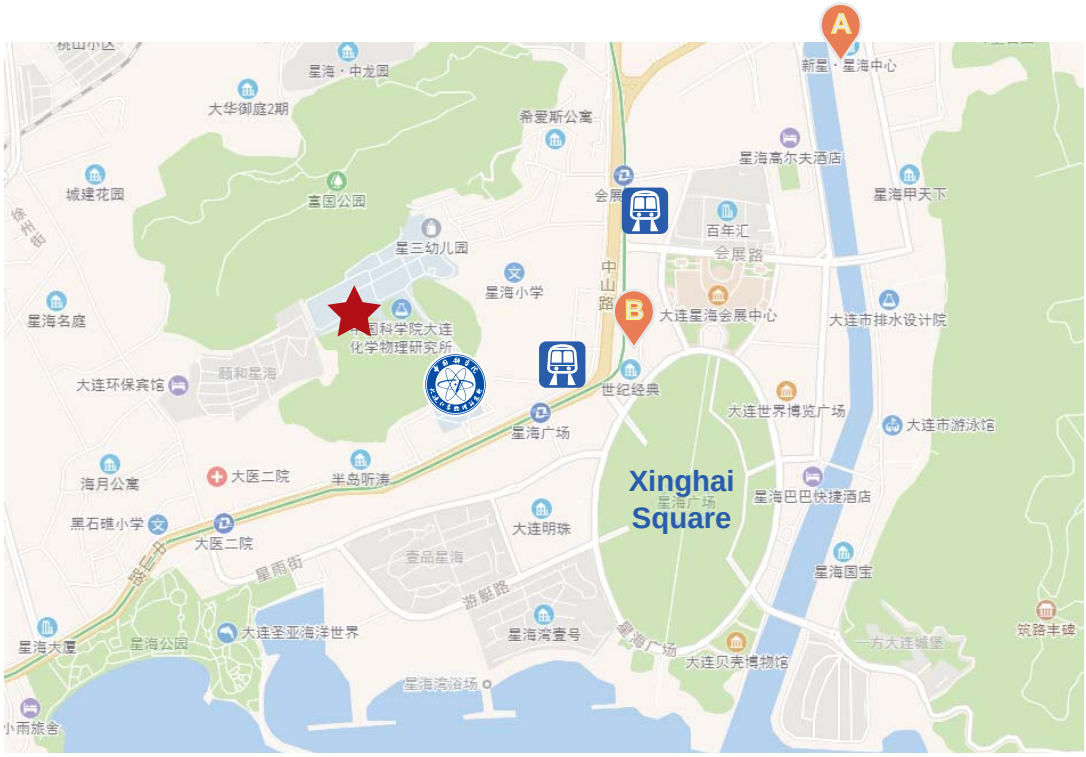
（7）会务组每日早中晚进行三次全场消杀工作，请参会人员保管好自己的随身物品，如丢失尽快与会务组联系；

防 疫 信 息 收 集 表 二 维 码

※ 请参会人员微信扫码后填写防疫信息收集表

四、会场地图及用餐用车等

化 物 所 周 边 及 酒 店 位 置 地 图



中国科学院大连化学物理研究所
Dalian Institute of Chemical Physics, CAS

会场
Conference Hall

A 星海皇冠假日酒店
Crowne Plaza Dalian Xinghai

B 国航酒店
Air China Hotel Dalian

地铁站
Metro Station

会议接送

联系人：黄瑞 13897938861

7月23日晚

晚餐地点：星海皇冠假日酒店（凭餐券入场）　**开餐时间：**18:40

上车地点： 会议中心（Building 7）门口　**发车时间：**18:30

晚宴结束，部分参会人员可乘车返回国航大厦

上车地点：星海皇冠假日酒店门口　**发车时间：**20:40

7月24日早

会议地点：大连化物所会议中心（Building 7）

路 线 A：星海皇冠假日酒店 → 会议中心（Building 7）

上车地点：星海皇冠假日酒店门口　**发车时间：**07:30

路 线 B：国航大厦 → 会议中心（Building 7）

上车地点：国航大厦门口　**发车时间：**07:40

7月24日晚

晚餐地点：星海皇冠假日酒店（凭餐券入场）　**开餐时间：**18:30

上车地点：会议中心（Building 7）门口　**发车时间：**18:15

晚宴结束，部分参会人员可乘车返回国航大厦

上车地点：星海皇冠假日酒店门口　**发车时间：**20:40

7月25日早

会议地点：大连化物所会议中心（Building 7）和交流中心（Building 17）

路 线 A：星海皇冠假日酒店 → 交流中心（Building 17）→ 会议中心（Building 7）

上车地点：星海皇冠假日酒店门口　**发车时间：**07:30

路 线 B：国航大厦 → 交流中心（Building 17）→ 会议中心（Building 7）

上车地点：国航大厦门口　**发车时间：**07:40

※ 星海皇冠假日酒店、国航大厦安排摆渡车，其余酒店自理。

温馨提示：请各位老师带好参会证，上下车带好随身物品，每天早晨大巴车准时发车，请自行安排好早餐时间。

会议用餐（凭券用餐）

联系人：刘艳廷 13610852710

时间		用餐地点
7月23日	晚餐（Dinner）	星海皇冠假日酒店（Crowne Plaza Dalian Xinghai）
7月24日	午餐（Lunch）	行政楼餐厅 / 山上餐厅（Cafeteria 1A / Cafeteria C）
	晚餐（Dinner）	星海皇冠假日酒店（Crowne Plaza Dalian Xinghai）
7月25日	午餐（Lunch）	行政楼餐厅 / 山上餐厅（Cafeteria 1A / Cafeteria C）

温馨提示：午餐时会有工作人员持指引牌在会场门口等待，引导至相应餐厅。

温馨提示

会场WiFi账号：CCAT2021　　密码：DICP123456

※ WiFi仅限会议和通讯用途，请勿发表不正当言论，谢谢您的配合！

大连化物所所区内禁止吸烟！

开会时，请将手机调至静音状态！

化物所所区地图

会议中心
Conference Center

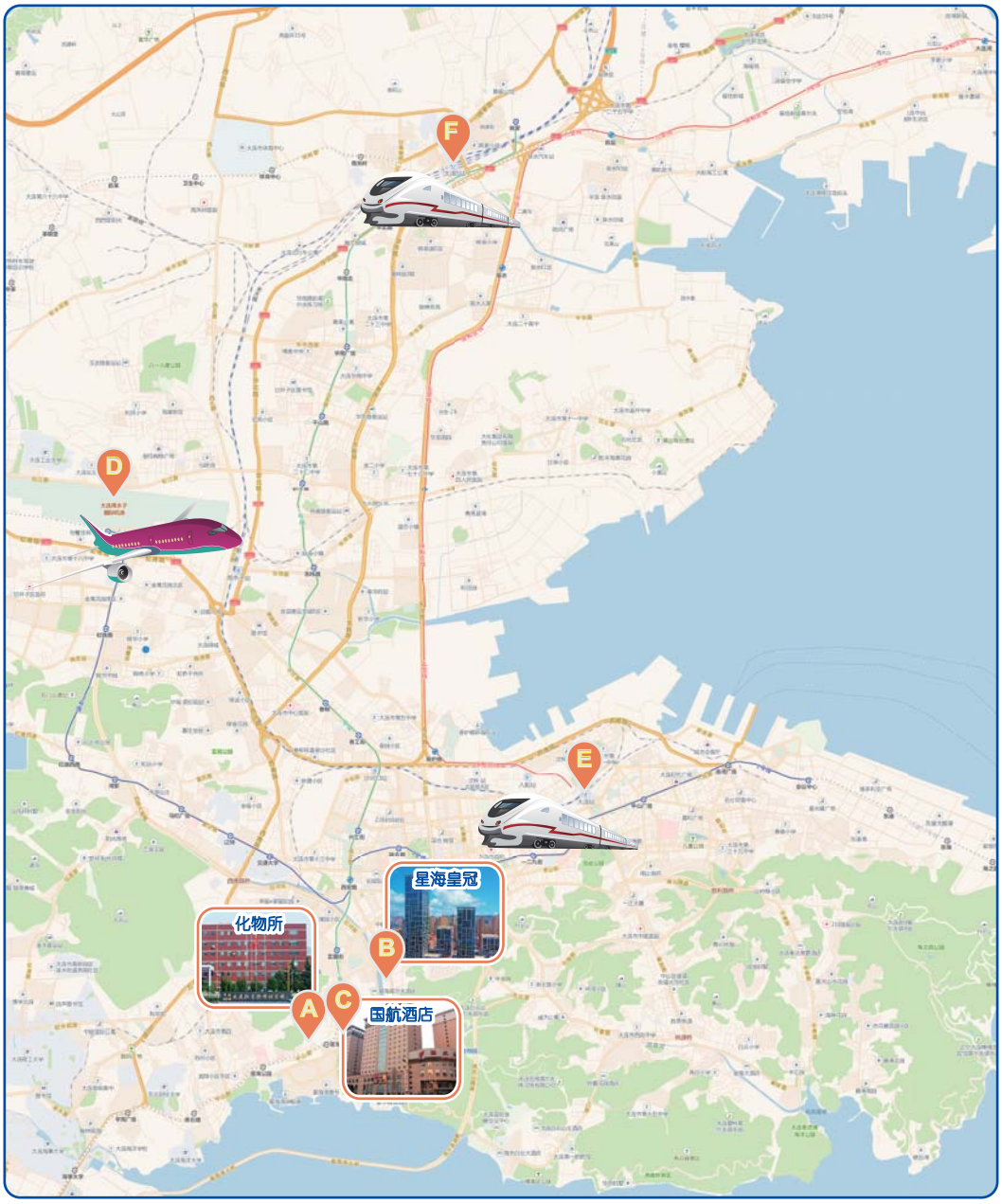
能源楼（A座）
Energy Building A

山上餐厅
Cafeteria C

交流中心
Communication Center

行政楼餐厅
Cafeteria 1A

交通地图



A 大连化物所（会议地点）
DICP（Conference）

B 星海皇冠假日酒店（住宿地点）
Crowne Plaza Dalian Xinghai (Hotel)

C 国航酒店（住宿地点）
Air China Hotel Dalian (Hotel)

D 大连周水子国际机场
Dalian International Airport

E 大连火车站
Dalian Railway Station

F 大连北站
Dalian North Railway Station

交通指南

一、机场出发

1. 机场至大连化物所（会议地点）：

（1）打车：全程约12公里，费用预计30元

（2）地铁：乘坐地铁2号线（步行约410米，机场站C口进入，海之韵方向）→ 西安路换乘 → 地铁1号线（河口方向）→ 星海广场（A1口出站，步行约600米）到达化物所

2. 机场至星海皇冠假日酒店（住宿地点）：

（1）打车：全程约10公里，费用预计25元

（2）地铁：乘坐地铁2号线（步行约410米，机场站C口进入，海之韵方向）→ 西安路换乘 → 地铁1号线（河口方向）→ 富国街（D口出站，步行约1.2公里）到星海皇冠假日酒店

3. 机场至国航大厦（住宿地点）：

（1）打车：全程约12公里，费用预计30元

（2）地铁：乘坐地铁2号线（步行约410米，机场站C口进入，海之韵方向）→ 西安路换乘 → 地铁1号线（河口方向）→ 星海广场（C口出站，步行约400米）到国航大厦

二、大连北站出发

1. 大连北站至大连化物所（会议地点）：

（1）打车：全程约19公里，费用预计40元

（2）地铁：乘坐地铁1号线（高铁出站即是地铁口，河口方向）→ 星海广场（A1口出站，步行约600米）到达化物所

2. 大连北站至星海皇冠假日酒店（住宿地点）：

（1）打车：全程约16公里，费用预计35元

（2）地铁：乘坐地铁1号线（高铁出站即是地铁口，河口方向）→ 富国街（D口出站，步行约1.2公里）到星海皇冠假日酒店

3. 大连北站至国航大厦（住宿地点）：

（1）打车：全程约19公里，费用预计40元

（2）地铁：乘坐地铁1号线（高铁出站即是地铁口，河口方向）→ 星海广场（C口出站，步行约400米）到国航大厦

三、大连站出发

1. 大连站至大连化物所（会议地点）：

（1）打车：全程约8公里，费用预计20元

（2）地铁：乘坐地铁2号线（步行502米，友好广场地铁站D口进站，辛寨子方向）→ 西安路换乘 → 地铁1号线（河口方向）→ 星海广场（A1口出站，步行约600米）到达化物所

2. 大连站至星海皇冠假日酒店（住宿地点）：

（1）打车：全程约5.6公里，费用预计17元

（2）地铁：乘坐地铁2号线（步行502米，友好广场地铁站D口进站，辛寨子方向）→ 西安路换乘 → 地铁1号线（河口方向）→ 富国街（D口出站，步行约1.2公里）到星海皇冠假日酒店

3. 大连站至国航大厦（住宿地点）：

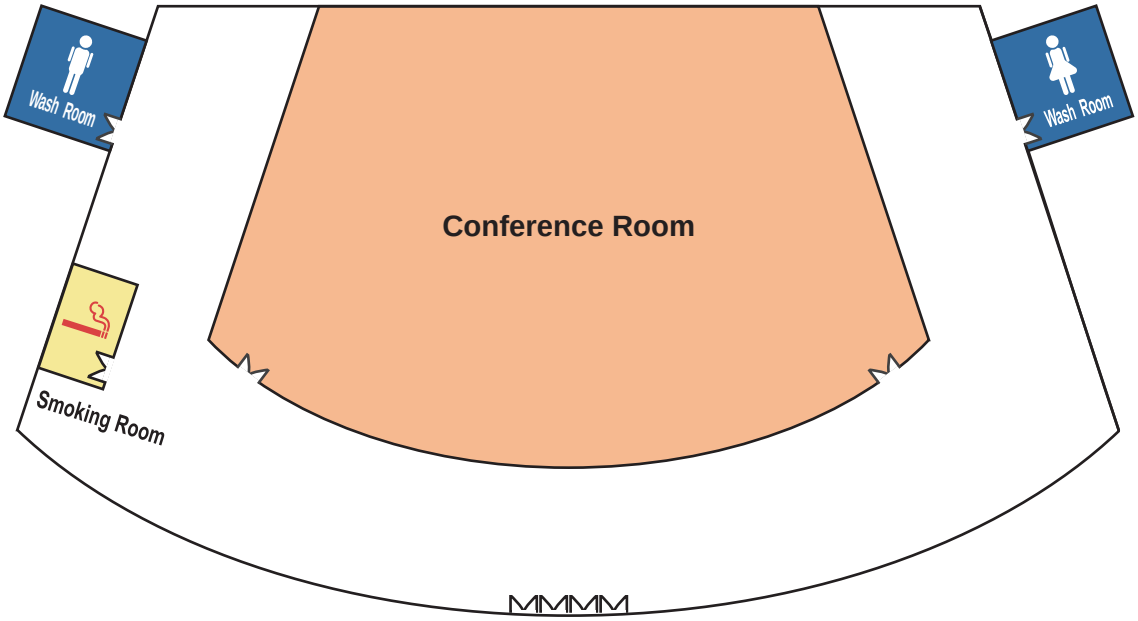
（1）打车：全程约8公里，费用预计20元

（2）地铁：乘坐地铁2号线（步行502米，友好广场地铁站D口进站，辛寨子方向）→ 西安路换乘 → 地铁1号线（河口方向）→ 星海广场（C口出站，步行约400米）到国航大厦

※ 会议期间，机场/高铁站往返大连化物所交通自理。

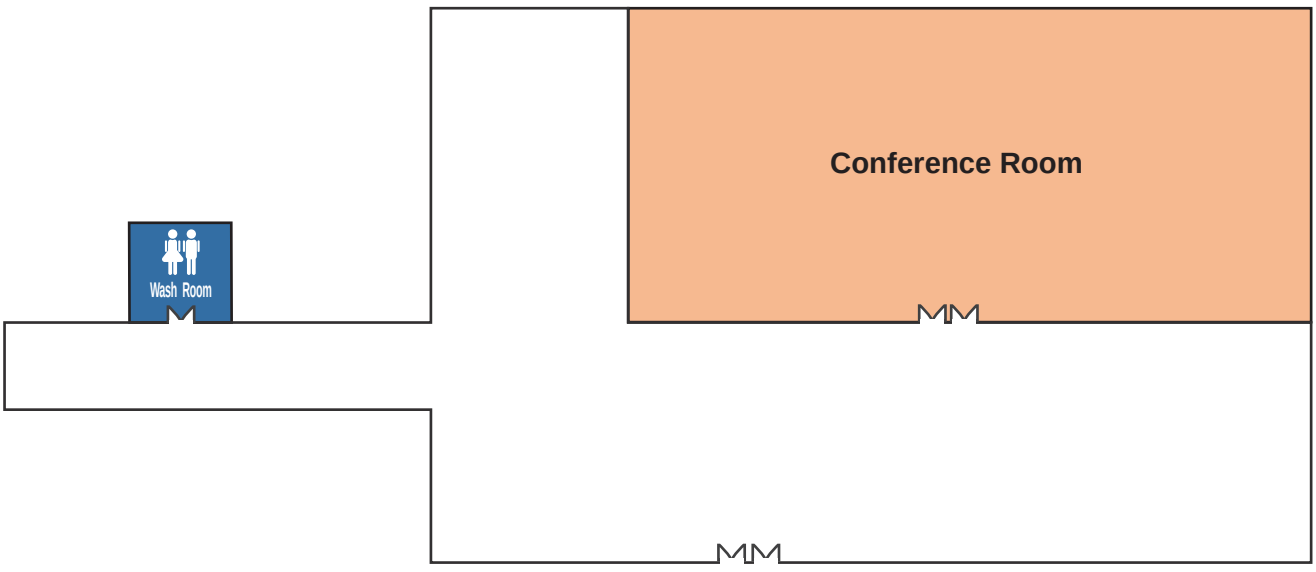
温馨提示：初次进入化物所的参会人员，请至化物所门岗，会有会务组工作人员为您指引。

会场示意图



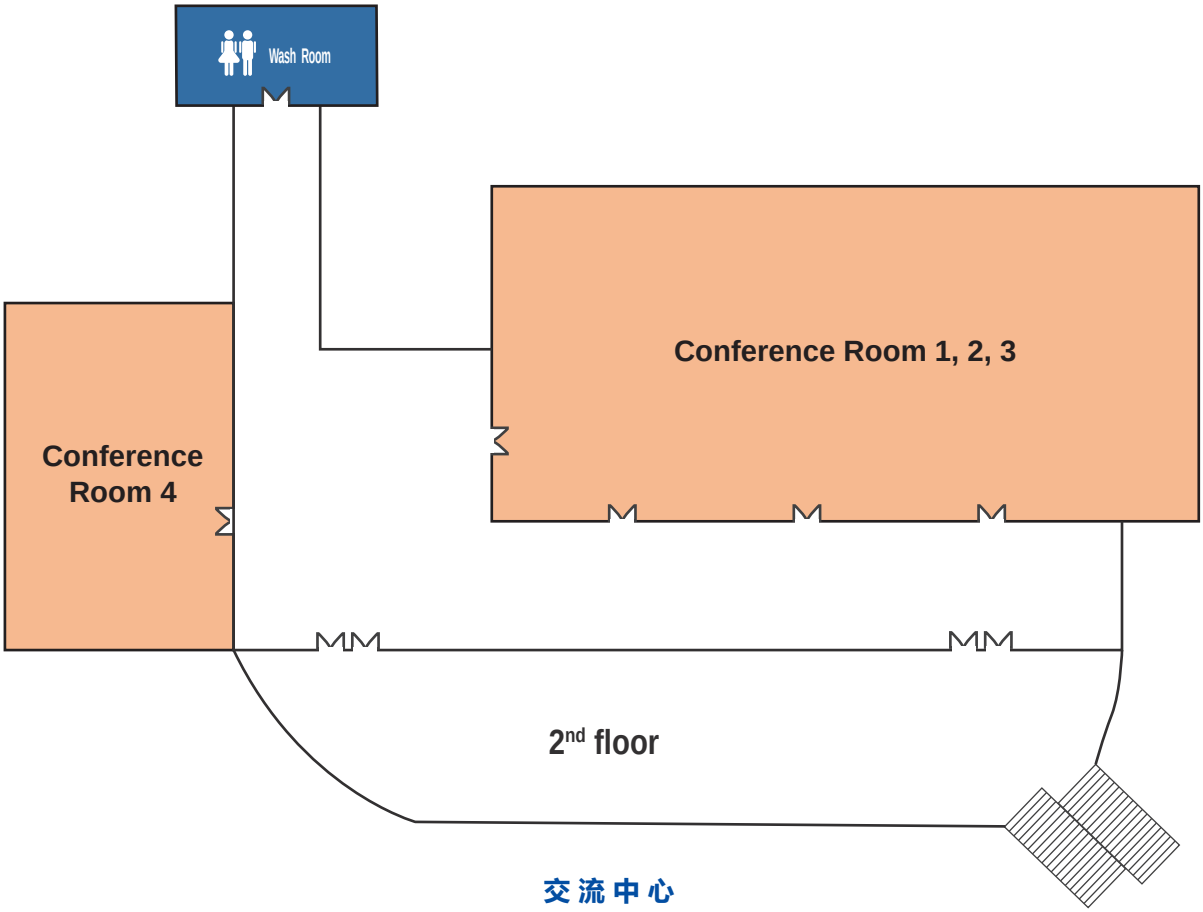
会议中心

Conference Center (Building 7)



能源楼 (A座)

Energy Building A (Building 8A)



交流中心
Communication Center (Building 17)

会务组分工及联络方式

负责项目	姓 名	电 话
总负责	高鹤华	13109809388
C1会场（第1、3、5分会）	黄 瑞（总负责）	13897938861
	李 缔	15271817737
C1会场（第2、4分会）	刘艳廷（总负责）	13610852710
	眷灵兴	15191795980
青年论坛会场	于 良（总负责）	13700097516
	范锦昌	15943013345
报道、注册	李 易	15080316543
用 餐	刘艳廷（总负责）	13610852710
	曲国栋（山上餐厅）	15698867037
	徐有生（行政楼餐厅）	13500755922
	刘 鑫（晚宴酒店）	15941193785
住 宿	杨 筠（星海皇冠假日酒店）	15641157885
	孟建洪（国航酒店）	13322277478
车辆调度	隋虎成	15698867036
墙 报	蔡亚丰	19802175579
展 商	赵柏蓓	17320271161
会议服务及应急	揣 媛	15698867010
	李 静	15698867057
安全保障	朱立富	15942674840

五、会议日程

Program

日 期	时 间	内 容
7月23日	12:00-14:00	注 册 & 签 到
	14:00-14:10	开幕式
	14:10-17:35	大会报告
	17:35-18:30	墙 报 & Author workshop
	18:40	晚 餐
7月24日	08:00-08:45	大会报告
	08:45-12:00	分会报告
	12:00-13:30	午 餐
	13:30-16:45	分会报告
	16:45-17:30	大会报告
	17:30-18:15	墙 报
	18:30	晚 餐
7月25日	08:00-12:10	分会报告
	12:10-13:30	午 餐
	13:30-14:30	Flash talk
	14:30-17:00	大会报告
	17:00-17:35	颁奖及闭幕式

※ 晚餐凭晚餐券入场用餐，谢谢！

PLE - Plenary（35 mins presentation and 10 mins Q&A）
KN - Keynote（25 mins presentation and 5 mins Q&A）
INV - Invited speaker（20 mins presentation and 5 mins Q&A）
O - Oral talk（8 mins presentation and 2 mins Q&A）

Friday, July 23, 2021		
Location: Conference Center (Building 7)		
12:00-14:00	**Registration** (Room: Conference Center 1st Floor)	
Chair: Prof. Dehui Deng		
14:00-14:05	Opening remarks - **Zhongmin Liu**, *Director of DICP*	
14:05-14:10	Opening remarks - **Robert Eagling**, *Cell Press, UK*	
Chair: Prof. Lizhu Wu		
14:10-14:55 **PLE-01**	**Xinhe Bao**, *University of Science and Technology of China* *Dalian Institute of Chemical Physics, CAS* The energy chemistry in the background of carbon neutrality	
14:55-15:40 **PLE-02**	**Christophe Copéret**, *ETH Zürich, Switzerland* Hydrocarbon conversion from catalysts prepared via Surface Organometallic Chemistry	
15:40-16:05	**Photo and Tea break**	
Chair: Prof. Xiulian Pan		
16:05-16:50 **PLE-03**	**Lizhu Wu**, *Technical Institute of Physics and Chemistry, CAS* Artificial Photosynthesis for Chemical Transformation	
16:50-17:35 **PLE-04**	**Bert Weckhuysen**, *Utrecht University, The Netherlands* New operando insights in the catalytic chemistry of small molecule activation	
17:35-18:30	**Poster presentation** (Conference Center 2nd Floor)	**Author Workshop** (Conference Center 1st Floor) **Chair: Prof. Qiang Fu** **Yan Li**, *Cell Press* Publishing in Cell Press Physical Science Journals **Bing Wu**, *Elsevier* Ethics in scientific publishing
18:40	**Committee Dinner**	

Saturday, July 24, 2021

Location: Conference Center (Building 7)

Chair: Prof. Zhiyong Tang, Dr. Yan Duan

08:00-08:45 **Edward Sargent**, *University of Toronto, Canada*
PLE-05 Reducing CO_2 and CO to valuable C2+ products using electrochemistry

Track 1: CO_2 conversion **Room: Conference Center 1st Floor**

08:45-09:15 **Zhiyong Tang**, *National Center for Nanoscience and Technology*
KN-01 Boosting the efficiency of electrocatalytic CO_2 reduction via nanoprison effect

09:15-09:40 **Yanqiang Huang**, *Dalian Institute of Chemical Physics, CAS*
INV-01 Regulation of strong metal–support interactions for catalytic COx hydrogenation reactions

09:40-09:50 **Dagang Yu**, *Sichuan University*
O-01 Visible-Light-Driven CO_2 utilization in organic synthesis

09:50-10:00 **Lu Wang**, *The Chinese University of Hong Kong*
O-02 Indium Oxide for photothermal catalytic CO_2 hydrogenation

10:00-10:10 **Chuangang Hu**, *Beijing University of Chemical Technology*
O-03 High-performance, long-life, rechargeable Li-CO_2 batteries with carbon-based cathodes

10:10-10:20 **Miao Zhong**, *Nanjing University*
O-04 Alloyed catalysts enable efficient and stable electrochemical CO_2 reduction

10:20-10:35 **Tea break**

Chair: Prof. Tierui Zhang, Dr. Yan Li

10:35-11:00 **Tierui Zhang**, *Technical Institute of Physics and Chemistry, CAS*
INV-02 Layered double hydroxide based nanostructured photocatalysts for solar fuels and value-added chemicals

11:00-11:25 **Bin Zhang**, *Tianjin University*
INV-03 CO_2 electroreduction: From unveiling active species to anodic alternative reactions

11:25-11:35 **Hongyan Liang**, *Tianjin University*
O-05 In-situ catalytic mechanism study of low-dimensional high-entropy alloys during CO_2 reduction

11:35-11:45 **Le He**, *Soochow University*
O-06 Mxene materials as superior photothermal supports for CO_2 photocatalysis

11:45-11:55 **Hongbo Zhang**, *Nankai University*
O-07 A preliminary study on Zintl cluster catalysis: Investigation on CeO_2 dispersed binary metal-Sn cluster preparation and application in reversed water-gas shift reaction

11:55-12:05 **Zhe Li**, *Xiamen University*
O-08 Alkane borylation catalyzed by a noble-metal-free metal-organic framework

12:05-13:30 **Lunch break**

Location: Energy Building A (Building 8A) **Saturday, July 24, 2021**

Track 2: Syngas conversion **Room: Energy Building A 1st Floor**

Chair: Prof. Ding Ma, Dr. Yanfei Zhu

08:45-09:15 **Ding Ma**, *Peking University*
KN-02 Water gas shift reaction over molybdenum carbide supported metal catalyst

09:15-09:40 **Weibin Fan**, *Institute of Coal Chemistry, CAS*
INV-04 Selective conversion of CO_2 into specific hydrocarbons

09:40-09:50 **Tingting Zheng**, *USTC*
O-09 Copper-catalyzed CO_2 electroreduction to pure liquid fuels

09:50-10:00 **Tao Cheng**, *Soochow Univesrity*
O-10 Multiscale simulation of carbon dioxide electrochemical reaction

10:00-10:10 **Kun Zhao**, *North China Electric Power University*
O-11 Interfacial reconstruction of transition metal-based materials for photocatalytic CO_2 reduction reaction

10:10-10:20 **Bin Zhang**, *Institute of Coal Chemistry, CAS*
O-12 Surface isolated single metal complexes for CO_2 hydrogenation

10:20-10:35 **Tea break**

Chair: Prof. Weibin Fan, Prof. Anhui Lu

10:35-11:00 **Anhui Lu**, *Dalian University of Technology*
INV-05 Selective fabrication of χ-Fe_5C_2 by interfering surface reactions as a highly efficient and stable Fischer-Tropsch synthesis catalyst

11:00-11:10 **Sen Wang**, *Institute of Coal Chemistry, CAS*
O-13 Selective conversion of CO_2 into ethene

11:10-11:20 **Qiang Chang**, *University of Cape Town, South Africa*
O-14 Potassium providing Fe-based Fischer-Tropsch catalyst with stability against oxidation by H_2O: captured by in situ magnetometer

11:20-11:30 **Li Tan**, *Fuzhou University*
O-15 Suppressing side reactions in syngas converting to light olefins via a core-shell structure catalyst

11:30-11:40 **Wei Sun**, *Zhejiang University*
O-16 CO_2 footprint of photothermal CO_2 catalysis

11:40-11:50 **Sirnivasapriyan Vijayan**, *Huaqiao University*
O-17 NI-based metal-organic framework nanorods self-assembled into hollow architecture and decorated with PT nanoparticles as nanocatalysts for co oxidation

11:50-12:00 **Guiyao Song**, *East China University of Science and Technology*
O-18 High conversion to aromatics via CO_2-FT over Cu-Fe_2O_3/HZSM-5 bifunctional catalyst

12:00-13:30 **Lunch break**

Location: Conference Center (Building 7) **Saturday, July 24, 2021**

Track 3: Methanol synthesis and conversion **Room: Conference Center 1st Floor**

Chair: Prof. Feng-Shou Xiao, Dr. Fenglin Liao

13:30-14:00 **Feng-Shou Xiao**, *Zhejiang University*
KN-3 Mild temperature oxidation of methane to methanol over metal nanoparticles fixed with hydrophobic modified zeolites

14:00-14:25 **Yingxu Wei**, *Dalian Institute of Chemical Physics, CAS*
INV-06 Dynamic procedure and shape selective catalysis in Methanol-to-Olefins process

14:25-14:35 **Guoliang Liu**, *Wuhan University*
O-19 Optimizing reaction network in direct CO_2 hydrogenation to higher alcohols

14:35-14:45 **Guowu Zhan**, *Huaqiao University*
O-20 Design of bifunctional catalysts with $ZnZrO_x$ and bio-ZSM-5 for enhanced CO_2 hydrogenation

14:45-14:55 **Guigao Liu** , *Nanjing University of Science and Technology*
O-21 Solar energy drives carbon dioxide photothermal conversion to synthesize carbon-based fuels

14:55-15:05 **Jingting Hu**, *Xiamen University*
O-22 Low-temperature CO_2 hydrogenation to methanol on sulfur vacancy-rich MoS_2

15:05-15:20 **Tea break**

Chair: Prof. Yingxu Wei, Prof. Yunjie Ding

15:20-15:45 **Yunjie Ding**, *Dalian Institute of Chemical Physics, CAS*
INV-07 Syngas Conversion: from Nano-catalysis to Single-Sites-Catalysis

15:45-15:55 **Lin Ye**, *Fudan University*
O-23 The synergy of modulated surface polarity and oxygen vacancy for CO_2 to methanol over $Zn(\delta^-)$-$Ti(\delta^+)O$ vacancy

15:55-16:05 **Yuchun Zhi**, *Dalian Institute of Chemical Physics, CAS*
O-24 Autocatalysis and deactivation mechanism of methanol-to-olefins (MTO) reaction

16:05-16:15 **Bo Wu**, *University of Chinese Academy of Sciences*
O-25 Atomically dispersed copper based catalysts for methane conversion to oxygenates

16:15-16:25 **Feng Xu**, *Fuzhou University*
O-26 Hollow nanosphere, alloy, and Pt-rich skinned nanoparticle constructed PtCu porous nanotubes with ultrahigh electrocatalytical activities for methanol oxidation and oxygen reduction reactions

16:25-16:35 **Zhiqiang Yang**, *Applied Sciences, bp Innovation and Engineering, BP plc*
O-27 Promotion of zeolite-catalyzed methanol dehydration to DME by organic additives

16:35-16:45 **O-28**	**Zhiqiang Rao**, *Southwest Petroleum University* Insights into the nonthermal effects of light in dry reforming of methane to enhance H_2/CO ratio near unity over Ni/Ga_2O_3
16:45-17:30 **PLE-06**	**Emiel Hensen**, *Eindhoven University of Technology, The Netherlands* Heterogeneous catalysis for sustainable chemical conversion: On metal nanoparticles, clusters, and single atoms at interfaces
17:30-18:15	**Poster presentation**
18:30-20:30	**Meet the speaker dinner**

Location: Energy Building A (Building 8A) **Saturday, July 24, 2021**

Track 4: Biomass and Formate **Room: Energy Building A 1st Floor**

Chair: Prof. Aiqin Wang, Dr. Yan Duan

13:30-14:00 **KN-04**	**Aiqin Wang**, *Dalian Institute of Chemical Physics, CAS* Exploring the Potential of Single-Atom Catalysts for Biomass Conversion
14:00-14:25 **INV-08**	**Lingyu Piao**, *National Center for Nanoscience and Technology* Photocatalytic water splitting with high value and high efficiency
14:25-14:35 **O-29**	**Yong Guo**, *East China University of Science & Technology* Hydrogen-free production of 4-alkylphenols from lignin via self-reforming-driven depolymerization and hydrogenolysis
14:35-14:45 **O-30**	**Meiting Zhao**, *Tianjin university* Multicomponent metal-organic frameworks: Controlled synthesis and selective catalysis
14:45-14:55 **O-31**	**Zheng Wang**, *Agricultural University of Hebei* Ruthenium-catalyzed hydrogenation of CO2 as a route to methyl esters for use as biofuels or fine chemicals
14:55-15:05 **O-32**	**Junfeng Liu**, *Beijing University of Chemical Technology* Metal-organic framework-derived single-atomic catalysts: Structural design and microenvironment engineering
15:05-15:20	**Tea break**

Chair: Prof. Yanqin Wang, Dr. Yan Li

15:20-15:45 **INV-09**	**Yanqin Wang**, *East China University of Science & Technology* Catalytic conversion of lignin to chemicals and fuels through precise C-O and C-C bonds activation

15:45-15:55	**Shukun Le**, *Inner Mongolia University of Technology*
O-33	Vanadium/tantalum based materials and application in photocatalytic of antibiotics residues in water environment
15:55-16:05	**Lisong Chen**, *East China Normal University*
O-34	Biomass electrooxidation promoted hydrogen evolution/CO_2 reduction
16:05-16:15	**Yanguang Wang**, *Jiaxing University*
O-35	A high-performance wood-carbon monolith reactor for steam reforming of biomass tar
16:15-16:25	**Yimeng Ma**, *Donghua University*
O-36	Impact of PEC alcohol oxidation kinetics upon selective formation of aldehyde on a α-Fe_2O_3 surface
16:25-16:35	**Huihuang Fang**, *Xiamen University*
O-37	Stable and anti-sintering tungsten carbides with controllable active phase for selective cleavage of aryl C–O bonds in lignin-derived oxygenates
16:35-16:45	**Yuanshuai Liu**, *Chinese Academy of Sciences*
O-38	Kinetic and mechanistic effects of solvents on zeolite-catalyzed phenol alkylation in the liquid phase
16:45-17:30	**Plenary talk** (Conference Center 1st Floor)
17:30-18:15	**Poster presentation** (Conference Center 2nd Floor)
18:30-20:30	**Meet the speaker dinner**

Sunday, July 25, 2021

Location: Conference Center (Building 7)

Track 5: CH_4 conversion — **Room: Conference Center 1st Floor**

Chair: Prof. Yan Zhu, Dr. Jiqing Sun

08:00-08:30 **Ya-Huei (Cathy) Chin**, *University of Toronto, Canada*
KN-05 Active Site Requirements for Light Alkane Activation on Transition Metal and Metal Oxide Catalysts

08:30-08:55 **Dehui Deng**, *Dalian Institute of Chemical Physics, CAS*
INV-10 New processes for low-temperature conversion of C1 molecules

08:55-09:20 **Yan Zhu**, *Nanjing University*
INV-11 Tuning selectivity in catalytic conversion of CO_2 by atomically precise metal clusters

09:20-09:30 **Chao Gao**, *University of Science and Technology of China*
O-39 Designing catalytic motifs for photo catalytic/photo electrochemical CO_2 conversion

09:30-09:40 **Jianyu Han**, *Southeast University*
O-40 A freestanding Cu electrode maximizing ethylene yield from CO_2 electro reduction via nanoprison effects

09:40-09:50 **Pengfei Xie**, *Zhejiang University*
O-41 Non-oxidative CH_4 conversion on stable single Pt atom catalysts

09:50-10:00 **Yong Yang**, *ShanghaiTech University*
O-42 In situ XRD/XPS/MS study of oxidative coupling of methane (OCM) over La_2O_3 for activation mechanism

10:00-10:10 **Yufei Zhao**, *Beijing University of Chemical Technology*
O-43 Nanostructured layered double hydroxide based photocatalysts for CO_2 reduction under irradiation above 600 nm

10:10-10:20 **Xiaofei Guan**, *ShanghaiTech University*
O-44 Methane dry reforming in a coking- and sintering-free liquid alloy-salt catalytic system

10:20-10:30 **Lingzhi Wang**, *East China University of Science and Technology*
O-45 Understanding the C-H activation mechanism of photocatalytic non-oxidative methane coupling

10:30-10:45 **Tea break**

Chair: Prof. Wei Chu, Dr. Yanfei Zhu

10:45-11:10 **Wei Chu**, *Sichuan University*
INV-12 New Catalysts for CO_2 Conversion and Fischer Tropsch Synthesis

11:10-11:20	**Ning Wang**, *Beijing University of Technology*
O-46	Probing the catalytic active sites of Mo/HZSM-5 and their deactivation during methane dehydroaromatization
11:20-11:30	**Songling Wang**, *Shanghai Jiao Tong University*
O-47	Atomically two-dimension metal oxides semiconductors for photocatalytic methane onversion
11:30-11:40	**Kun Jiang**, *Shanghai Jiao Tong University*
O-48	Recent advances in operando spectroelectrochemcial study of aqueous CO_2 reduction
11:40-11:50	**Jun Guo**, *Tiangong University*
O-49	Phase engineering of ZrO chain-based MOF as robust Lewis acid catalyst for Carbon Dioxide cycloaddition
11:50-12:00	**Yangming Lin**, *Max Planck Institute for Chemical Energy Conversion*
O-50	Insights into the mechanism of carbocatalysis with model catalysts
12:00-13:30	**Lunch break**
Chair: Dr. Jiqing Sun, Dr. Yanfei Zhu	
13:30-14:30	Flash talks (Track 1)
Chair: Prof. Buxing Han	
14:30-15:15	**Zhongmin Liu**, *Dalian Institute of Chemical Physics, CAS*
PLE-07	Recent progress in methanol conversion technologies
Chair: Prof. Zhongmin Liu	
15:15-16:00	**Buxing Han**, *Institute of Chemistry, CAS*
PLE-08	Conversion of biomass and CO_2 into value-added chemicals and fuels
16:00-16:45	**Núria López**, *Institute of Chemical Research of Catalonia, Spain*
PLE-09	New developments in thermal and electrochemical catalysis of C1
16:45-17:00	**Refreshment break**
Chair: Dr. Fenglin Liao	
17:00-17:15	Poster award
17:15-17:25	Closing remark - **Steve Cranford**, *Cell Press, USA*
17:25-17:35	Closing remark - **Dehui Deng**, *DICP*

YINV - Invited speaker of Youth Forum（12 mins presentation and 3 mins Q&A）
YO - Oral talk of Youth Forum（8 mins presentation and 2 mins Q&A）

Youth Forum Program

Saturday, July 24, 2021

Location: Communication Center (Building 17)

Track 1: Thermal Catalysis — **Room: Conference Room 1, 2, 3**
Chair: Prof. Junling Lu, Prof. Guangjin Hou

08:45-09:00 **Junling Lu**, *University of Science and Technology of China*
YINV-01 In situ spectroscopic observation and theoretical calculations unveil the active sites of inverse ZnO/Cu catalysts for methanol synthesis

09:00-09:15 **Guangjin Hou**, *Dalian Institute of Chemical Physics, CAS*
YINV-02 On the syngas conversion over bifunctional catalysts: Insights from solid-state NMR studies

09:15-09:30 **Qingli Qian**, *Institute of Chemistry, CAS*
YINV-03 Synthesis of C2+ chemicals from CO_2 and H_2 via C-C bond formation

09:30-09:45 **Lijing Cheng**, *Institute of Atmospheric Physics, CAS*
YINV-04 Climate change and carbon neutrality target

09:45-10:00 **Guodong Li**, *National Center for Nanosciecne and Technology*
YINV-05 Controllable synthesis of porous nanomaterials for thermal catalysis

10:00-10:10 **Xiaoliang Yan**, *Taiyuan University of Technology*
YO-01 Engineering robust Ni catalysts for high-performance CO_2 activation

10:10-10:20 **Lidan Deng**, *Huazhong University of Science and Technology*
YO-02 Transfer hydrogenation of CO_2 into formaldehyde from aqueous glycerol heterogenerously catalyzed by Ru bound to LDH

10:20-10:35 **Tea break**

Chair: Prof. Xiaodong Wen, Dr. Fenglin Liao

10:35-10:50 **Xiaodong Wen**, *Institute of Coal Chemistry, CAS*
YINV-06 Rational design of FE-based catalysts for Fischer-Tropsch synthesis from theoretical prediction to experimental confirmation

10:50-11:05 **Cheng Wang**, *Xiamen University*
YINV-07 Neighboring Zn-Zr sites in a metal-organic framework for CO_2 hydrogenation

11:05-11:20 **Zhonghua Xiang**, *Beijing University of Chemical Technology*
YINV-08 Pyrolysis-free covalent organic polymers for electrocatalysis

11:20-11:35	**Kui Xie**, *Fujian Institute of Research on the Structure of Matter, CAS*
YINV-09	Porous single crystals and heterogeneous catalysis
11:35-11:50	**Yang Lou**, *Jiangnan University*
YINV-10	Methane activation over zeolite supported atomically dispersed metal active site
11:50-12:00	**Pengju Ren**, *Institute of Coal Chemistry, CAS*
YO-03	How does low-coordinate site of metal particles reinforce methane adsorption and activation
12:00-12:10	**Bang Gu**, *Yunnan University*
YO-04	Genesis of cobalt-bismuth core-shell nanoparticles in carbon nanotube supported Fischer-Tropsch catalysts with enhanced stability
12:10-13:30	**Lunch break**
Chair: Prof. Feng Shi, Dr. Jiqing Sun	
13:30-13:45	**Feng Shi**, *Lanzhou Institute of Chemical Physics, CAS*
YINV-11	Catalytic synthesis of fine chemicals with C1 molecules
13:45-14:00	**Haifeng Xiong**, *Xiamen University*
YINV-12	Vapor-phase self-assembly to generate single atom catalysts with weak metal-support interaction
14:00-14:15	**Jian Liu**, *Dalian Institute of Chemical Physics, CAS*
YINV-13	Molecular-level design of nanoreactors simulating enzyme
14:15-14:30	**Chang Yu**, *Dalian University of Technology*
YINV-14	Functional carbon materials-driven electrosynthesis of fine chemicals and optimization of integration system
14:30-14:45	**Yifeng Zhu**, *Fudan University*
YINV-15	Tailoring metal atomicity and local coordination to control CO_2 hydrogenation
14:45-15:00	**Wenming Tian**, *Dalian Institute of Chemical Physics, CAS*
YINV-16	Time-resolved imaging technique and applications
15:00-15:10	**Yu Tang**, *Fuzhou University*
YO-05	Synergy of single-atom Ni_1 and Ru_1 sites on CeO_2 for dry reforming of CH_4
15:10-15:25	**Tea break**
Chair: Prof. Shuai Wang, Assoc. Prof. Kang Cheng	
15:25-15:40	**Kang Cheng**, *Xiamen University*
YINV-17	The distance needed for bifunctional catalysis in C1 chemistry
15:40-15:55	**Shuai Wang**, *Xiamen University*
YINV-18	Selective oxidation of methane to formaldehyde and CO on B_2O_3 catalysts

15:55-16:10	**Fan Yang**, *ShanghaiTech University*
YINV-19	Interfacial catalysis over well-defined oxide nanostructures: From atomic-scale properties to in-situ reaction dynamics
16:10-16:25	**Min Liu**, *Central South University*
YINV-20	Enhanced CO_2 reduction via electric field
16:25-16:35	**Liangdong Fan**, *Shenzhen University*
YO-06	Active heterostructure materials for High temperature CO_2 ceramic electrolyzer: Structural design and electrochemical performance
16:35-16:45	**Meng Tian**, *Soochow University*
YO-07	Unraveling the lithiophilic nature of heteroatom-doped carbons for efficient oxygen reduction in Li-O_2 batteries

Location: Communication Center (Building 17) **Saturday, July 24, 2021**

Track 2: Electrocatalysis **Room: Conference Room 4**

Chair: Prof. Jianfeng Li, Dr. Jiqing Sun

08:45-09:00	**Jianfeng Li**, *Xiamen University*
YINV-21	In-situ probing surface catalysis using core-shell nanoparticle-enhanced Raman spectroscopy
09:00-09:15	**Zhenyu Sun**, *Beijing University of Chemical Technology*
YINV-22	Surface/interface modification of metal-based materials for enhanced electrochemical CO_2 reduction
09:15-09:30	**Junjie Ge**, *Changchun Institute of Applied Chemistry*
YINV-23	Proton exchange membrane fuel cells powered with H_2/CO mixture and pure carbon monoxide
09:30-09:45	**Guoxiong Wang**, *Dalian Institute of Chemical Physics, CAS*
YINV-24	Dynamic evolution of catalytic active site for CO_2 electrolysis
09:45-10:00	**Liang Yu**, *Dalian Institute of Chemical Physics, CAS*
YINV-25	Tailoring MoS_2 for catalytic hydrogenation and hydrogen evolution reactions
10:00-10:10	**Yuning Huo**, *Shanghai Normal University*
YO-08	Antibacterial performance of synergistic photocatalysis-photothermal system on CuCo-MOF
10:10-10:20	**Chengyan Wen**, *Southeast University*
YO-09	Single-step selective conversion of CO_2 to aromatics over Na-promoted Fe_3O_4/Hierarchical HZSM-5 tandem catalyst
10:20-10:35	**Tea break**

Chair: Prof. Jianan Zhang, Prof. Chuanxin He

10:35-10:50 **Jianan Zhang**, *Zhengzhou University*
YINV-26 Confinement metal–nitrogen-carbon electrocatalysts: Synthesis strategies and chemical environmental regulation

10:50-11:05 **Chuanxin He**, *Shenzhen University*
YINV-27 Interface enhanced electrocatalysis

11:05-11:20 **Haobin Wu**, *Zhejiang University*
YINV-28 Electrocatalytic conversion of CO_2 to high-value products on modified Cu electrodes

11:20-11:35 **Ming Gong**, *Fudan University*
YINV-29 Molecules for understanding interfacial electrocatalysis

11:35-11:50 **Jing Xu**, *Elsevier*
YINV-30 Deep Insights and Advanced Analytics — How Elsevier Promotes Catalysis Cutting-Edge Research

11:50-12:00 **Xin Han**, *East China University Of Science And Technology*
YO-10 Non-noble metal Ni-Mo alloys with special electronic structure as a cocatalyst for alternative Pt in photocatalysis

12:00-12:10 **Wenjing Wang**, *Hebei University*
YO-11 2D/2D iodinene/g-C_3N_4 nanosheets for efficient photocatalytic CO_2 reduction under visible light

12:10-13:30 **Lunch break**

Chair: Prof. Yanguang Li, Dr. Yanfei Zhu

13:30-13:45 **Yanguang Li**, *Soochow University*
YINV-31 Electrochemical CO_2 reduction to C1 products: From material design to device engineering

13:45-14:00 **Zheng Jiang**, *Shanghai Advanced Research Institute*
YINV-32 The application of synchrotron radiation X-ray spectroscopy in the C1 chemistry

14:00-14:15 **Dongjiang Yang**, *Qingdao University*
YINV-33 Carbon defect induced efficient electrocatalyst for oxygen reduction

14:15-14:30 **Han Hu**, *China University of Petroleum (East China)*
YINV-34 Catalytic effect of intrinsic carbon defects for improved electrochemical energy storage

14:30-14:45 **Guangqin Li**, *Sun Yat-Sen University*
YINV-35 Metal-organic frameworks featuring multifunctional catalysts

14:45-14:55 **Sheng Chen**, *Nanjing University of Science and Technology*
YO-12 Shape-memory $V_3O_7 \cdot H_2O$ electrocatalyst for foldable N_2 fixation

14:55-15:05 **Jiadong Liu**, *Inner Mongolia University*
YO-13 Remarkable enhancement in the catalytic performance of MoS_2-based catalyst promoted by rare-earth elements for higher alcohols synthesis from syngas

15:05-15:20	**Tea break**
Chair: Prof. Jinxun Liu, Prof. Yuhang Wang	
15:20-15:35	**Jinxun Liu**, *University of Science and Technology of China*
YINV-36	Computational cluster catalysis
15:35-15:50	**Yuhang Wang**, *Soochow University*
YINV-37	Electrochemical valorization of carbon dioxide using copper-based gas diffusion electrodes
15:50-16:05	**Sam Yu**, *Elsevier*
YINV-38	How to use Reaxys for catalysis research?
16:05-16:20	**Jiadong Zhou**, *Beijing Institute of Technology*
YINV-39	Two-dimensional transition metal chalcogenides for electrocatalysis
16:20-16:30	**Hui Ning**, *China University of Petroleum (East China)*
YO-14	Carbon/metal composites for efficient CO_2 electroreduction
16:30-16:40	**Yan Chen**, *South China University of Technology*
YO-15	In situ growth of Co-Fe alloy nanoparticles from perovskite-based oxideselectrodes for high-temperature carbon dioxide electrolysis

Sunday, July 25, 2021

Location: Communication Center (Building 17)

Track 3: Electrocatalysis -2 **Room: Conference Room 1, 2, 3**

Chair: Prof. Yuen Wu, Dr. Yan Duan

08:00-08:15 **Yuen Wu**, *University of Science and Technology of China*
YINV-40 Single atom enzymes-like catalysts

08:15-08:30 **Deli Wang**, *Huazhong University of Science and Technology*
YINV-41 Electrocatalysis on structure ordered intermetallics

08:30-08:45 **Xiaoxin Zou**, *Jilin University*
YINV-42 Low-iridium oxygen evolution electrocatalysts

08:45-09:00 **Jianping Yang**, *Donghua University*
YINV-43 Carbon-based electrocatalysts for nitrate reduction

09:00-09:15 **Lihua Chen**, *Wuhan University of Technology*
YINV-44 Hierarchically porous zeolite single crystals for high catalytic efficiency

09:15-09:30 **Zhiyu Wang**, *Dalian University of Technology*
YINV-45 Li metal-free rechargeable batteries with high energy and high safety

09:30-09:45 **Weihua Chen**, *Zhengzhou University*
YINV-46 Interface engineering in sodium ion batteries

09:45-10:00 **Qingfu Sun**, *Fujian Institute of Research on the Structure of Matter, CAS*
YINV-47 Molecular recognition and catalysis within adaptive coordination cages

10:00-10:15 **Minghua Huang**, *Ocean University of China*
YINV-48 Design the metal-organic frame materials and explore the relationship between electronic structure and oxygen evolution performance

10:15-10:25 **Huanhao Chen**, *Nanjing Tech University*
YO-16 Integration of membrane separation with non-thermal plasma (NTP) catalysis: A proof-of-concept for CO_2 capture and utilisation (CCU)

10:25-10:35 **Xiaofu Sun**, *Institute of Chemistry, CAS*
YO-17 Electrochemical transformation of CO_2 into value-added chemicals in ionic liquid-based electrolytes

10:35-10:50 **Tea break**

Chair: Prof. Jianping Lai, Prof. Angang Dong

10:50-11:05 **Angang Dong**, *Fudan University*
YINV-49 Nanocrystal superlattices and derivatives for energy applications

11:05-11:20	**Jianping Lai**, *Qingdao University of Science and Technology*
YINV-50	Clean energy electrocatalytic materials
11:20-11:30	**Liangsheng Hu**, *Shantou University*
YO-18	Development of some heterostructured catalysts for water splitting
11:30-11:40	**Zhigang Geng**, *University of Science and Technology of China*
YO-19	Coordination chemistry of electrocatalysts for the conversion of non-polar small molecules
11:40-11:50	**Chunxia Mi**, *Beijing University of Chemical Technology*
YO-20	Pyrolysis-free covalent organic frameworks as high-efficiency bifunctional oxygen catalyst
11:50-12:00	**Zongkui Kou**, *Wuhan University of Technology*
YO-21	Atomic-scale energy electrocatalysis
12:00-12:10	**Yuting Wang**, *Tianjin University*
YO-22	Nitric Acid and ammonia electrosynthesis
12:10-13:30	**Lunch break**
Chair: Assoc. Prof. Liangsheng Hu, Assoc. Prof. Zhigang Geng	
13:30-14:30	Flash talks (Track 2)

Location: Communication Center (Building 17)	**Sunday, July 25, 2021**
Track 4: Thermal catalysis -2	**Room: Conference Room 4**
Chair: Prof. Wei Li, Dr. Yan Li	
08:00-08:15	**Wei Li**, *Fudan University*
YINV-51	Synthesis of mesoporous materials for photocatalysis
08:15-08:30	**Lin He**, *Lanzhou Institute of Chemical Physics (LICP), CAS*
YINV-52	C1 resource utilization: Homogeneous and heterogeneous catalysts for carbonylation
08:30-08:45	**Zhongshuai Wu**, *Dalian Institute of Chemical Physics, CAS*
YINV-53	2D materials for energy catalysis in oxygen evolution reaction and lithium-sulfur batteries
08:45-09:00	**Hongyang Liu**, *Institute of Metal Research, CAS*
YINV-54	Defect-rich graphene stabiliezd atomically dispersed metal catalyst for efficient light alkane activation
09:00-09:15	**Pei Yuan**, *Fuzhou University*
YINV-55	非均相催化加氢制备高性能氢化聚合物的研究
09:15-09:30	**Bing Yang**, *Dalian Institute of Chemical Physics, CAS*
YINV-56	Open the “black box” : Visualizing dynamic restructuring of metal catalyst during reaction
09:30-09:45	**Changyan Cao**, *Institute of Chemistry, CAS*
YINV-57	Single-atom catalysts for thermal heterogeneous catalysis in liquid

09:45-10:00 **YINV-58**	**Xuezhi Duan**, *East China University of Science and Technology* Active sites regulation toward targeted adsorption configuration and kinetics for semi-hydrogenation of acetylene
10:00-10:15 **YINV-59**	**Hongliang Li**, *University of Science and Technology of China* Effective activation and selective conversion of CO_2 molecules
10:15-10:25 **YO-23**	**Ying Zhang**, *Jiangnan University* Unravelling the electrocatalytic activity of bismuth nanosheets towards carbon dioxide reduction
10:25-10:35 **YO-24**	**Yuefeng Liu**, *Dalian Institute of Chemical Physics, CAS* In-situ microstructure analysis of cobalt-based catalysts for C1 molecules hydrogenation
10:35-10:50	**Tea break**
Chair: Prof. Wu Zhou, Assoc. Prof. Lipeng Zhang	
10:50-11:05 **YINV-60**	**Wu Zhou**, *University of Chinese Academy of Sciences* Probing the Functionalities of Energy Materials with Single Atom Microscopy
11:05-11:15 **YO-25**	**Lipeng Zhang**, *Beijing University of Chemical Technology* Covalent organic frameworks based electrocatalyst design for CO_2 reduction to CO
11:15-11:25 **YO-26**	**Xusheng Zheng**, *University of Science and Technology of China* Dual-metal sites boosting polarization of nitrogen molecules for efficient nitrogen photofixation
11:25-11:35 **YO-27**	**Zheng Wang**, *Agricultural University of Hebei* Ruthenium-catalyzed hydrogenation of CO_2 as a route to methyl esters for use as biofuels or fine chemicals
11:35-11:45 **YO-28**	**Daohao Li**, *Qingdao University* Interfacial effect boosting hydrogen evolution activity at all pH values of ruthenium phosphides
11:45-11:55 **YO-29**	**Wei Zhou**, *China University of Mining and Technology* Supported Pt-WO_x catalysts in glycerol hydrogenolysis: fine structure, acidity and synthesis strategy perspective of active site
11:55-12:05 **YO-30**	**Zhangfeng Shen**, *Jiaxing University* Construction of porous materials for CO_2 capture and catalytic conversion
12:05-13:30	**Lunch break**
Chair: Assoc. Prof. Xusheng Zheng, Assoc. Prof. Zheng Wang	
13:30-14:30	Flash talks (Track 3)

Location: Energy Building A (Building 8A) **Sunday, July 25, 2021**

Track 5: Photo catalysis **Room: Energy Building A 1st Floor**

Chair: Prof. Hexiang Deng, Dr. Fenglin Liao

08:00-08:15 **Hexiang Deng**, *Wuhan University*
YINV-61 What can MOF offer for CO_2 photoreduction?

08:15-08:30 **Yingpeng Wu**, *Hunan University*
YINV-62 Reconstruction of the electrode in energy storage/conversion

08:30-08:45 **Yi Cui**, *Suzhou Institute of Nano-Tech and Nano-Bionics*
YINV-63 Transition metal carbides studied in nano-x

08:45-09:00 **Fengtao Fan**, *Dalian Institute of Chemical Physics, CAS*
YINV-64 Spatial imaging of photogenerated charges in solar fuel production

09:00-09:15 **Shunji Xie**, *Xiamen University*
YINV-65 Solar energy-driven sustainable process for synthesis of ethylene glycol from methanol

09:15-09:30 **Ran Long**, *University of Science and Technology of China*
YINV-66 Mechanism study on activation and selective conversion of C1 molecules

09:30-09:45 **Nengchao Luo**, *Dalian Institute of Chemical Physics, CAS*
YINV-67 Biomass conversion to energy chemicals by photocatalysis

09:45-10:00 **Zhan Lin**, *Guangdong University of Technology*
YINV-68 Hydrogen production via photo-assisted thermal catalytic aqueous phase reforming of methanol

10:00-10:15 **Yuehui Li**, *Lanzhou Institute of Chemical Physics, CAS*
YINV-69 Catalytic cyanation using CO_2

10:15-10:30 **Jinxuan Liu**, *Dalian university of Technology*
YINV-70 Surface-supported Metal-Organic Frameworks for CO_2 reduction

10:30-10:45 **Tea break**

Chair: Prof. Yingpeng Wu , Prof. Liang Wang

10:45-11:00 **Liang Wang**, *Zhejiang University*
YINV-71 Hetero-atom zeolite catalysts for propane dehydrogenation

11:00-11:15 **Fan Zhang**, *Sichuan University*
YINV-72 Catalytic upcycling plastic waste to fuels and high-valued chemicals

11:15-11:25 **Lvyang Wang**, *Shenzhen Technology University*
YO-31 Defects engineering on TiO_2 for co-catalyst free hydrogen production

11:25-11:35 **Yi Wan**, *State Key Laboratory of Heavy Oil Processing*
YO-32 High performance electrodeposited self-supported MnO_2 nanosheets for supercapacitors

11:35-11:45	**Long Jiao**, *University of Science and Technology of China*
YO-33	MOF-derived single-atom electrocatalysts for highly selective CO_2 reduction
11:45-11:55	**Haiting Cai**, *University of Toronto*
YO-34	Kinetic significance of pyridine hydrogenation on Pd and Pt nanoparticles
11:55-13:30	**Lunch break**
Chair: Prof. Fengtao Fan, Prof. Fan Zhang	
13:30-14:30	Flash talks (Track 4)

FT - Flash talk

Flash talks

Track 1	
Room: Conference Center(Building 7) 1st Floor	
Chair: Dr. Jiqing Sun, Dr. Yanfei Zhu	
13:30-13:33	**Guichu Yue**, *Beihang University*
FT-01	Coral-like Au/TiO_2 hollow nanofibers with through-holes as high efficient catalyst through mass transfer
13:33-13:36	**Jiasheng Wang**, *Dalian University of Technology*
FT-02	Ultrasmall Ni–ZnO clusters for catalyzing the hydrogenation of sodium bicarbonate to formic acid
13:36-13:39	**Tiancheng Pu**, *Lehigh University*
FT-03	Unraveling the reactivity of ethylene with oxygen species on/in silver catalysts
13:39-13:42	**Yaxuan Jing**, *East China University of Science and Technology*
FT-04	Towards the circular economy: Converting aromatic plastic wastes back to arenes over Ru/Nb_2O_5 catalyst
13:42-13:45	**Shasha Chu**, *School of Environment and Energy,South China University of Technology*
FT-05	Sinter-resistant Rh nanoparticles supported on Al_2O_3 nanosheets as an efficient catalyst for CO_2 reforming of CH_4
13:45-13:48	**Huahua Zhao**, *Chinese Academy of Sciences*
FT-06	The dry reforming of methane with carbon dioxide over Ni-La catalyst with low Ni loading
13:48-13:51	**Li Wang**, *South-Central University for Nationalities*
FT-07	Stabilization of ε-iron carbide as high-temperature catalyst under realistic Fischer-Tropsch synthesis conditions
13:51-13:54	**Lu Guan**, *China University of Petroleum (East China)*
FT-08	Intrinsic defect-rich hierarchically porous carbon architectures enabling enhanced capture and catalytic conversion of polysulfides
13:54-13:57	**Xueli Li**, *Beijing university of chemical technology*
FT-09	Identify the effect of the carbon matrix adjacent to isolated FeN_4 configuration sites for acid oxygen reduction
13:57-14:00	**Wei Zhang**, *Fudan University*
FT-10	Defect-engineering of mesoporous TiO_2 microspheres with phase junctions for efficient visible-light driven CO_2 reduction
14:00-14:03	**Yajing Zhang**, *Ocean University of China*
FT-11	Multifunctional nickel sulfide nanosheet arrays for solar-intensified oxygen evolution reaction

14:03-14:06 **Yurou Li**, *East China University of Science and Technology*
FT-12 Single-atom Pt doped In_2O_3 for acetylene semi- hydrogenation

14:06-14:09 **Guanfeng Liang**, *Fudan University*
FT-13 Phosphorus coordinated Rh single-atom sites on nanodiamond as highly regioselective catalyst for hydroformylation of olefins

14:09-14:12 **Xiaoling Teng**, *China University of Petroleum (East China)*
FT-14 Identifying the role of CO nanoparticles loaded on carbon for synergistic lithium storage by in-situ magnetometry

14:12-14:20 **Yanfei Zhu**, *Cell press*
FT-15

Track 2

Room: Communication Center (Building 17) Room 1, 2, 3

Chair: Assoc. Prof. Liangsheng Hu, Assoc. Prof. Zhigang Geng

13:30-13:33 **Xupeng Zong**, *Beijing University of Technology*
FT-16 A route of acetic acid producing from highly selective photocatalytic ethane oxidation over single-atomic palladium anchored on polymeric carbon nitride

13:33-13:36 **Yuehan Cao**, *Southwest Petroleum University*
FT-17 Modulating electron density of vacancy site bysingle Au atom for effective CO_2 photoreduction

13:36-13:39 **Suxia Liang**, *Dalian Institute of Chemical Physics, CAS*
FT-18 First-principles study on low-temperature methane conversion at ZSM-5-confined Fe-sites

13:39-13:42 **Yujing Weng**, *Henan Polytechnic University*
FT-19 Oxygen-defect enriched Ir/WO_x catalysts for hydrothermal hydrogenation of cellulose into ethanol

13:42-13:45 **Xingju Li**, *University of Science and Technology of China*
FT-20 Tripling the activity of single-RH-site via synergistic effect of organic/inorganic composite support for methanol carbonylation

13:45-13:48 **Yifeng Zhao**, *Shanghaitech University*
FT-21 One-pot synthesis of 0D/2D carbon materials by bubbling chemical vapor deposition

13:48-13:51 **Didi Li**, *East China University of Science and Technology*
FT-22 Induced activation of the commercial Cu/ZnO/Al_2O_3 catalyst

13:51-13:54 **Huidong Shen**, *Beijing University of Chemical Technology*
FT-23 Surface modification of materials for N_2 fixation

13:54-13:57 **Lifen Li**, *Jiaxing University*
FT-24 CO_2 Photoreduction via quantum tunneling: Thin TiO_2-Coated GaP with coherent interface to achieve electron tunneling

13:57-14:00 **Jikang Wang**, *Beijing University of Chemical Technology*
FT-25 Highly selective photo-hydroxylation of phenol using ultrathin NiFe-layered double hydroxide nanosheets under visible-light up to 550 nm

14:00-14:03 **Shenghua Wang**, *Zhejiang University*
FT-26 CO_2 footprint of thermal versus photothermal CO_2 catalysis

14:03-14:06 **Xiaohu Ge**, *Ecust China University Of Science and Technology*
FT-27 Engineering active sites at atomic-level for regulating reaction pathways of acetylene semi-hydrogenation

14:06-14:09 **Xinyu Liu**, *University of science and technology of China*
FT-28 Identifying the active sites of atomically-dispersed ZnO on copper catalysts for CO_2 hydrogenation via in situ spectroscopic investigation and theoretical calculations

14:09-14:12 **Mo Zhang**, *Dalian Institute of Chemical Physics, CAS*
FT-29 Removal of H_2S from syngas for highly efficient H_2 production

14:12-14:20 **Yan Duan**, *Cell press*
FT-30

Track 3

Room: Communication Center (Building 17) Room 4

Chair: Assoc. Prof. Xusheng Zheng, Assoc. Prof. Zheng Wang

13:30-13:33 **Yujie Liao**, *North China Electric Power University*
FT-31 Synergy between non-thermal plasma and 3d transition metal oxide loaded catalyst for selective CO_2 reduction to CO

13:33-13:36 **Zeai Huang**, *Southwest Petroleum University*
FT-32 Promotion of photocatalytic steam reforming of methane over Ag^0/Ag^+-$SrTiO_3$

13:36-13:39 **Hao Tian**, The Chinese University of Hong Kong
FT-33 Avoiding Sabatier's conflict in bifunctional heterogeneous catalysts for the Water-Gas Shift (WGS) reaction

13:39-13:42 **Zhuoshi Li**, *Tianjin University*
FT-34 Co/SiO_2 catalyst with Co0-tetrahedral CoO dual active sites derived from cobalt silicate hydroxide for higher alcohol synthesis from syngas

13:42-13:45 **Jiahui Yu**, *The University of Nottingham*
FT-35 UiO-66-derived ZrO_2 supported Ce/Ni nano-catalysts for efficient CO_2 methanation

13:45-13:48	**Caiqi Wang**, *Shanghai Advanced Research Institute*
FT-36	Direct synthesis of higher alcohols from syngas over modified Mo_2C catalysts under mild reaction conditions
13:48-13:51	**Yanwei Cao**, *Lanzhou Institute of Chemical Physics, CAS*
FT-37	Au/ZnO catalyzed CO coupling to oxamides at room temperature
13:51-13:54	**Wenjie Shi**, *Xiamen Universtiy*
FT-38	Bifunctional metal-organic layers for tandem catalytic transformations using molecular oxygen and carbon dioxide
13:54-13:57	**Shipei He**, *Institute of Coal Chemistry, CAS*
FT-39	Regulating the aluminum distribution of ITQ-13 zeolite and its catalytic performance in conversion of methanol to olefins
13:57-14:00	**Xianbiao Hou**, *Ocean University of China*
FT-40	Controllable amorphization engineering on bimetallic metal-organic frameworks for ultrafast oxygen evolution reaction
14:00-14:03	**Chunxiao Liu**, *University of Science and Technology of China*
FT-41	Diffusion confined engineering over Cu_2O hollow multi- shell structure toward efficient CO_2 electro - dimerization
14:03-14:06	**Chunjin Ren**, *Southeast University*
FT-42	Selectivity picture of the electrochemical CO_2 reduction on bimetal catalysts: A descriptor approach
14:06-14:09	**Bin Shao**, *East China University of Science and Technology*
FT-43	High-temperature CO_2 capture and in-situ conversion in the context of green manufacturing
14:09-14:12	**Huifang Wei**, *Dalian Institute of Chemical Physics, CAS*
FT-44	PdCu alloy supported on carbon nanotubes for roomtemperature electrochemical water-gas shift reaction
14:12-14:20	**Yan Li**, *Cell press*
FT-45	

Track 4

Room: Energy Building A (Building 8A) 1st Floor

Chair: Prof. Yi Cui, Prof. Fan Zhang

13:30-13:33	**Kun Gong**, *Shanghai Advanced Research Institute of CAS*
FT-46	Size effect of $Co_xMn_{1-x}O$ precursor for Fischer-Tropsch to olefins over Co2C-based catalysts

13:33-13:36 **Yuheng Jiang**, *National Center for Nanoscience and Technology*
FT-47 Photocatalytic oxidation of methane to methanol on Palladium modified titanium dioxide under mild conditions

13:36-13:39 **Bohang Zhao**, *Tianjin University*
FT-48 Unveiling the activity origin of iron nitride catalytic material for efficient hydrogenation of CO_2 to C2+ hydrocarbons

13:39-13:42 **Yanhua Wan**, *Zhengzhou University*
FT-49 Reaction mechanism and interface conductive principle of iron phosphide anode for sodium-ion batteries

13:42-13:45 **Xuan Tang**, *East China University of Science and Technology*
FT-50 The effect of the active site structure over Cu/ZSM-5 in the direct oxidation of methane to oxygenates

13:45-13:48 **Tingting Qin**, *Chinese Academy of Science*
FT-51 Alkali-metal modified Ru-based catalyst for ethylene hydroformylation

13:48-13:51 **Huoliang Gu**, *Fudan University*
FT-52 Graphdiyne/graphene heterostructure: A universal 2D scaffold anchoring mono-dispersed transition-metal phthalocyanines for selective and durable CO_2 electroreduction

13:51-13:54 **Yan Shen**, *College of Chemistry and Chemical Engineering*
FT-53 Automated screening of CO_2RR catalysts

13:54-13:57 **Xingkun Wang**, *Ocean University of China*
FT-54 Discriminating active species of atomically dispersed catalyst for oxygen reduction in a wide pH range

13:57-14:00 **Shaopeng Li**, *Institute of Chemistry, CAS*
FT-55 Selective hydrogenation of 5-(hydroxymethyl)furfural to 5-methylfurfural over single atomicmetals anchored on Nb_2O_5

14:00-14:03 **Kaili Yao**, *School of Materials Science and Engineering, Tianjin University*
FT-56 Metal organic framework derived copper catalysts for CO_2 to ethylene conversion

14:03-14:06 **Rui Huang**, *Dalian Institute of Chemical Physics, CAS*
FT-57 Versatile IR spectroscopy for catching the key clues of catalytic reaction

14:06-14:09 **Chenyuan Zhu**, *Fudan University*
FT-58 Product-specific active site motifs of Cu for electrochemical CO_2 reduction

14:12-14:20 **Fenglin Liao**, *Cell press*
FT-59

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P-01 Coral-like Au/TiO_2 hollow nanofibers with through-holes as high efficient catalyst through mass transfer
Guichu Yue

P-02 A route of acetic acid producing from highly selective photocatalytic ethane oxidation over single-atomic palladium anchored on polymeric carbon nitride
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P-13 Avoiding Sabatier's conflict in bifunctional heterogeneous catalysts for the Water-Gas Shift (WGS) reaction
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P-14 Nature and catalytic roles of surface sites in SiO_2-supported, Mn- & Na-Promoted Tungsten oxide catalysts for oxidative coupling of Methane (OCM)
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Xuewei Huang, Zhiyong Tang

P-22 Sinter-resistant Rh nanoparticles supported on Al_2O_3 nanosheets as an efficient catalyst for CO_2 reforming of CH_4
Shasha Chu, Weizheng Weng, Xintai Su

P-23 Fabrication of sandwich-structured nickel/kaolinite catalyst for stable dry reforming of methane
Hao Qu, Hui Yang, Libo Han, Sihui He, Yue Su, Haiquan Su

P-24 $ZnCrO_x$ catalyst for photothermal Fischer-Tropsch synthesis: A win-win for conversion and selectivity
Yichi Zhang, Libo Xiang, Yue Su, Haiquan Su

P-25 Design and catalytic performance of CuCo-based catalysts for CO_2 hydrogenation
Bin Kang, Yue Su, Haiquan Su

P-26 Phase transformation induced highly stable Ni/Mno catalyst for dry reforming of methane
Libo Han, Ting Yang, Yue Su, Haiquan Su

P-27 Fabrication of porous Mo_2C catalyst with remarkably enhanced catalytic performance for higher alcohols synthesis from syngas
Sihui He, Hao Qu, Yue Su, Haiquan Su

P-28 Alumina-supported CoNi alloy catalyst derived from layered double metal hydroxide for CO_2 methanation
Feifei Li, Bin Kang, Yue Su, Haiquan Su

P-29 Highly dispersed nickel-based catalyst with strong metal-support interaction induced by the phase transformation of Na_2TiO_3
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P-30 Fabrication of alkaline-functionalized-graphenesupported highly dispersed $MoSe_2$ catalyst for higher alcohols synthesis
Caixia Hao, Hao Qu, Shihui He, Jiadong Liu, Yue Su, Haiquan Su

P-31 Study on the catalytic performance of K_2MoO_4-MoC composite catalyst for syngas to higher alcohols
Jian Sun, Yue Su, Haiquan Su

P-32 Tripling the activity of single-RH-site via synergistic effect of organic/inorganic composite support for methanol carbonylation
Xingju Li, Siquan Feng, Xiangen Song, Jiali Mu, Yunjie Ding

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P-38 Interface engineering of PdBi electrocatalyst to boost electrochemical CO_2 reduction to formate
Wenhui Liu, Shengjuan Huo

P-39 Direct synthesis of higher alcohols from syngas over modified Mo_2C catalysts under mild reaction conditions
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P-40 Structure-activity relationship of K-promoted Rh catalyst for syngas conversion
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P-41 Alkali-metal modified Ru-based catalyst for ethylene hydroformylation
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P-42 Fastening Br^- ions at copper-molecule interface enables highly efficient electroreduction of CO_2 to ethanol
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P-47 Au/ZnO catalyzed CO coupling to oxamides at room temperature
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P-48 Graphdiyne/graphene heterostructure: A universal 2D scaffold anchoring mono-dispersed transition-metal phthalocyanines for selective and durable CO_2 electroreduction
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P-49 New alternatives of heterogeneous catalysts for biomass transformation
Jahaziel Amaya, William Quiroga

P-50 Intrinsic defect-rich hierarchically porous carbon architectures enabling enhanced capture and catalytic conversion of polysulfides
Lu Guan, Han Hu, Mingbo Wu

P-51 Identifying the role of CO nanoparticles loaded on carbon for synergistic lithium storage by in-situ magnetometry
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Zhigang Chen

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P-57 Aqueous-phase reforming of methanol over cobalt/aluminum mixed oxides supported Pt catalyst for hydrogen production
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P-58 In situ electrochemcial deposition of bismuth in a metal- organic framework for electrocatalytic CO_2 reduction to formate
Xinru He

P-59 Facile one-step synthesis of hierarchical macro/microporous ZSM-5 zeolite with silica spheres
Shiying Li

P-60 Metal–organic frameworks embedded in a liposome facilitate overall photocatalytic water splitting
Huihui Hu, Zhiye Wang, Lingyun Cao, Lingzhen Zeng, Cankun Zhang, Wenbin Lin, Cheng Wang

P-61 Automated screening of CO_2RR catalysts
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P-62 Identify the effect of the carbon matrix adjacent to isolated FeN_4 configuration sites for acid oxygen reduction
Xueli Li, Zhonghua Xiang

P-63 CO_2 Photoreduction via quantum tunneling: Thin TiO_2-Coated GaP with coherent interface to achieve electron tunneling
Li Lifen, Li Yefei, Liu Zhipan

P-64 Effect of acidity of metal oxides on the distribution of light olefins in CO_2 hydrogenation
Shujia Guo, Sen Wang, Zhangfeng Qin, Mei Dong, Weibin Fan

P-65 Half-coated metal/oxide nanostructures for photothermal catalytic CO_2 reduction
Zhijie Zhu, Le He

P-66 Regulating the aluminum distribution of ITQ-13 zeolite and its catalytic performance in conversion of methanol to olefins
Shipei He, Sen Wang, Mei Dong, Zhangfeng Qin, Weibin Fan, Jianguo Wang

P-67 Molybdenum carbides based on Ni-MoF as efficient catalysts for conversion of syngas to higher alcohol
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P-68 Discriminating active species of atomically dispersed catalyst for oxygen reduction in a wide pH range
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