

Symposium - G06

In Situ Characterization and Design of Advanced Materials

October 15 (Sunday), 2023

Conference Room: 7th hall, room 2

9:00-10:35 Session I

Chair: Sergey V. Levchenko

9:00-9:35 (G06-01)

In situ characterization and design of advanced nanomaterials using ultra high vacuum transmission electron microscopy (Keynote)

Frances M. Ross, Massachusetts Institute of Technology, America

9:35-10:10 (G06-02)

To be determined (Keynote)

Xiaodong Wen, Institute of Coal Chemistry Chinese Academy of Sciences, China

10:10-10:35 (G06-03)

Electron microscopy for better electrocatalysts (Invited)

Qian He, National University of Singapore, Singapore

10:35-10:45 Coffee Break

10:45-12:00 Session II

Chair: Xiaodong Wen

10:45-11:20 (G06-04)

Finding descriptors by data analytics for functional materials design (Keynote)

Sergey V. Levchenko, Skolkovo Institute of Science and Technology, Russia

11:20-11:45 (G06-05)

Dynamic catalysis theory for gold catalysts based on machine learning potential energy function (Invited)

Jincheng Liu, Nankai University, China

11:45-12:00 (G06-06)

纳米尺度的先进材料分析技术 (Oral)

刘聪, 布鲁克 (北京) 科技有限公司

12:00-13:30 Lunch

Afternoon, October 15 (Sunday), 2023 (GMT+8, China Standard Time)

13:30-15:30 Session III

Chair: Qian He

13:30-14:05 (G06-07)

Computer-assisted design of interface structures for functional materials (Keynote)

Chenghua Sun, Swinburne University of Technology, Australia

14:05-14:40 (G06-08)

Theoretical study of spectroscopy and ultrafast dynamics in organic semiconductors (Keynote)

Haibo Ma, Shandong University, China

14:40-15:05 (G06-09)

In situ TEM study of the surface/interface mechanisms of alloy phase separation (Invited)

Langli Luo, Tianjin University, China

15:05-15:30 (G06-10)

Mechanistic insight into MoO₃ for high-performance intercalation electrode materials (Invited)

Wei Zhang, Jilin University, China

15:40-17:20 Session IV

Chair: Haibo Ma

15:40-16:15 (G06-11)

Energy landscapes: from molecules and nanodevices to electrode materials (Keynote)

David J. Wales, University of Cambridge, Britain

16:15-16:40 (G06-12)

Redox chemistry studied by operando TEM (Invited)

Xing Huang, Fuzhou University, China

16:40-17:05 (G06-13)

Atomic-scale dynamic observations of grain boundaries in Al₂O₃ (Invited)

Jiake Wei, Dalian Institute of Chemical Physics Chinese Academy of Sciences, China

17:05-17:20 (G06-14)

The synergy of NH₃-SCR catalysts revealed by DFT and experimental studies (Oral)

Songda Li, Zhejiang University

17:20 Dinner

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October 16 (Monday), 2023 (GMT+8, China Standard Time)

9:00-10:25 Session V

Chair: Yong Wang

9:00-9:35 (G06-15)

Passive oxide film growth observed on the atomic scale (Keynote)

Guangwen Zhou, State University of New York at Binghamton, America

9:35-10:00 (G06-16)

Microstructure investigation of acetylene selective hydrogenation catalysts (Invited)

Bingsen Zhang, Institute of Metal Research Chinese Academy of Sciences, China

10:00-10:25 (G06-17)

Atomic dynamics of solid-solid interfacial transformations (Invited)

Xianhu Sun, Lawrence Berkeley National Laboratory, America

10:25-10:35 Coffee Break

10:35-12:00 Session VI

Chair: Bingsen Zhang

10:35-11:10 (G06-18)

Visualizing catalytic reactions via environmental TEM (Keynote)

Yong Wang, Zhejiang University, China

11:10-11:35 (G06-19)

In-situ dual-beam FTIR : applications and potentials in heterogeneous catalysis (Invited)

Jiaxu Liu, Dalian University of Technology, China

11:35-12:00 (G06-20)

In-situ transmission electron microscopy studies of the all solid state Li-ion batteries (Invited)

Liqiang Zhang, Yanshan University, China

12:00-13:30 Lunch

13:30-15:20 Session VII

Chair: Wei Liu

13:30-14:05 (G06-21)

Understanding the nature of oxygen vacancy at the reduced metal oxide surface (Keynote)

Yi Gao, Shanghai Advanced Research Institute Chinese Academy of Sciences, China

14:05-14:30 (G06-22)

Modelling metal nanoparticle structure and dynamics in reactive environments (Invited)

Beien Zhu, Shanghai Advanced Research Institute Chinese Academy of Sciences, China

14:30-14:55 (G06-23)

Origin of the liquid/gaseous water binding energy splitting measured via X-ray photoelectron spectroscopy (Invited)

Bo Yang, ShanghaiTech University, China

14:55-15:20 (G06-24)

Temperature-pressure phase diagram of confined monolayer water/ice: machine-learning force field at the first-principles accuracy (Invited)

Lei Li, Southern University of Science and Technology, China

15:20-15:30 Coffee break

15:30-17:35 Session VIII

Chair: Beien Zhu

15:30-16:05 (G06-25)

Identify the microstructure boosting catalytic activity via quantitative in situ TEM (Keynote)

Wei Liu, Dalian Institute of Chemical Physics Chinese Academy of Sciences, China

16:05-16:30 (G06-26)

In situ exploration of surface dynamics of nanocatalyst at the atomic level (Invited)

Wentao Yuan, Zhejiang University, China

16:30-16:55 (G06-27)

The development of high-performance in-situ X-ray μ -CT and its application in material science (Invited)

Yi Ma, Nanjing Tech University, China

16:55-17:20 (G06-28)

Understanding the oxidation behavior of alloys (Invited)

Ying Jiang, Zhejiang University, China

17:20-17:35 (G06-29)

In-situ TEM study on thermostability and structural evolution of titanate nanotubes (Oral)

Chunxi Li, Zhejiang University, China