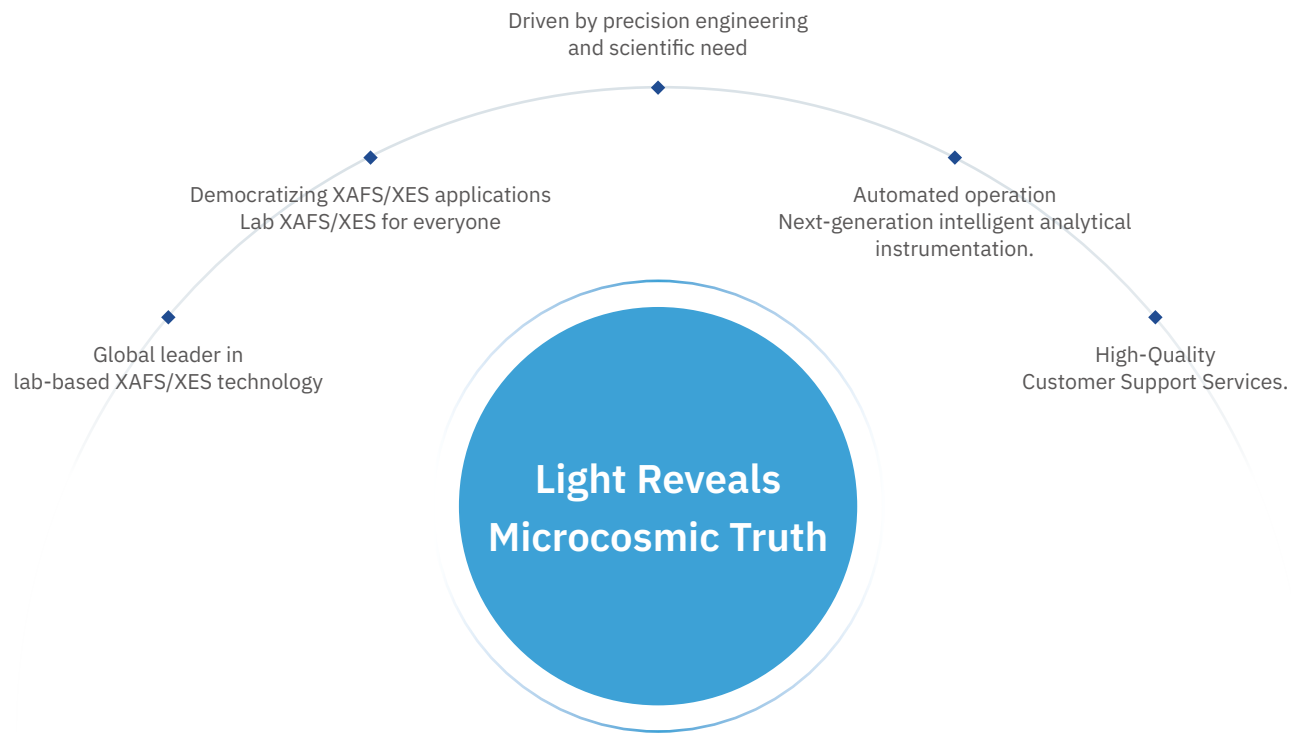




Rapid XES

Hard X-ray Emission Spectrometer

From Absorption to Emission
Comprehensive Insight into Electronic Structure



Anhui Absorption Spectroscopy Analysis Instrument Co., Ltd.

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70⁺

Benttop XAFS systems worldwide

50%

2024 & 2025 China Market Share

550

Supported publications

Corporate Honors



Technology Leadership, Industry Advantage



Company Profile

Anhui Absorption Spectroscopy Instrument Co., Ltd. (branded as RapidXAFS) was founded by pioneering scientists with decades of expertise in synchrotron radiation X-ray absorption and emission spectroscopy. Our mission is to revolutionize materials research by making X-ray Absorption Fine Structure (XAFS) technology accessible to every laboratory for everyone.

For years, XAFS and X-ray Emission Spectroscopy (XES) were exclusively dependent on limited-access synchrotron facilities, creating bottlenecks in research progress. As cutting-edge research increasingly demands precise XAFS\XES data representation, RapidXAFS delivers turnkey solutions to meet this growing demand across academia and industry - accelerating discoveries without synchrotron constraints.

Bringing XES To Every Lab



4⁺

Invention Patents

6⁺

Utility Model Patents

20⁺

Software Copyrights

Rapid XES

Hard X-ray Emission Spectrometer



Energy Coverage
4.5–20keV



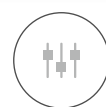
High Energy Resolution
≤ 1 eV(based on Cu Kα line)



Detection Limit
50 ppm



Carrier Rate
>10¹²/s



In-situ
HT/LT, Electrocatalysis, Battery

Technology Overview

Global Leader in Lab-Based XES – The compact benchtop Rapid XES system delivers synchrotron-comparable resolution and sensitivity for hard X-ray emission spectroscopy, freeing researchers from dependence on synchrotron radiation sources. This breakthrough technology enables detailed electronic structure and orbital characterization in a standard laboratory environment, accelerating discoveries in catalytic mechanisms, advanced materials development, and next-generation energy solutions.

Competitive Advantages

01

Electronic Structure Analysis

Oxidation state, spin state, coordinating element types and electronic orbital information

02

Synchrotron-Comparable Data Quality

Testing efficiency and detection limits comparable to synchrotron radiation sources

03

Operational Convenience

User-friendly interface, fast startup and minimal training required

04

Compact Design

Fits standard laboratory spaces, enabling distributed materials characterization

Applications

• Oxidation State and Valence Analysis

Reveals changes in metal oxidation states and evolution of coordination structures.

• Energy Materials Development

Operando monitoring of batteries, fuel cells, and photovoltaic materials.

• Catalytic Mechanism Research

Real-time tracking of active sites during reaction processes.

• Materials Characterization

Analysis of band structure, local bonding characteristics, and electronic transitions.

• Environmental Monitoring

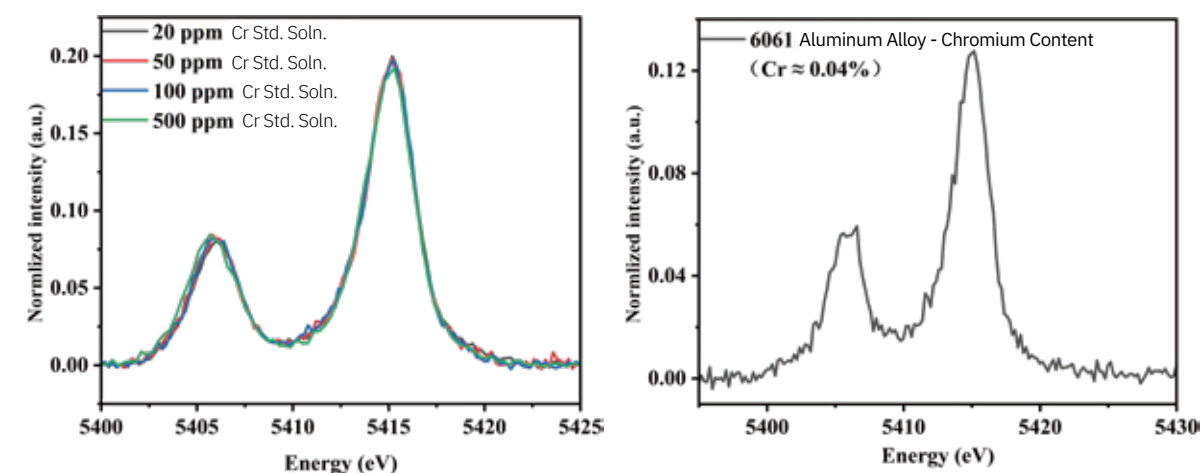
Trace analysis of heavy metals in soil, water, and atmospheric samples.

• Bioinorganic Chemistry

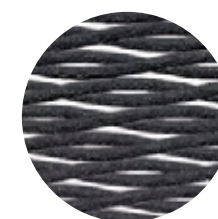
Probing metal coordination centers in enzymes and proteins.

Product Advantages

► Ultra-Low Detection Limit (50ppm)



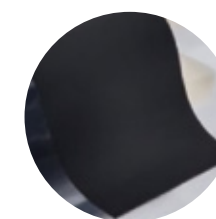
► Versatile Sample Compatibility (Thick Substrates, Low Loadings)



Stainless Steel Mesh



Carbon paper in situ growth

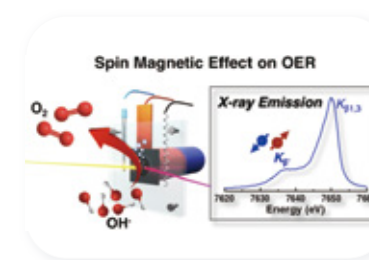


Membrane materials

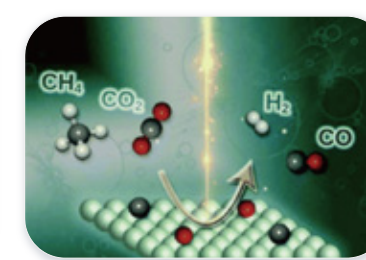


Foam Substrates

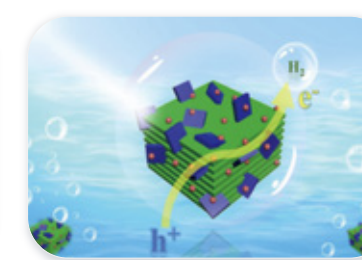
► Advanced In Situ Characterization (Real-Time Insights Under Operating Conditions)



Electrocatalysis



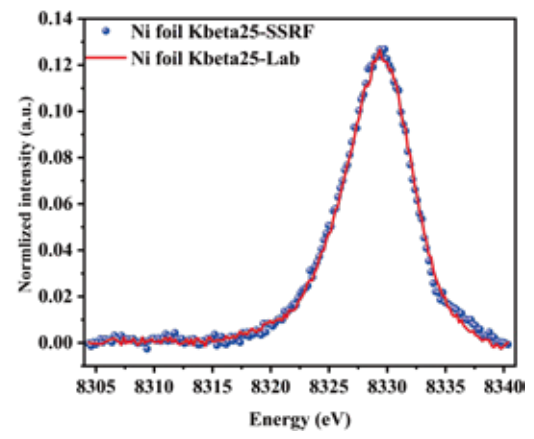
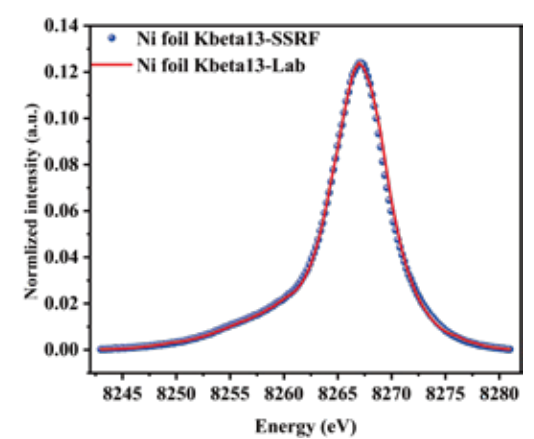
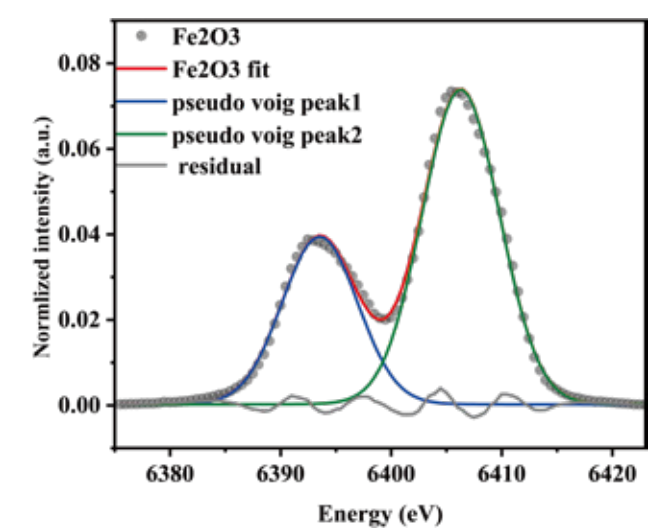
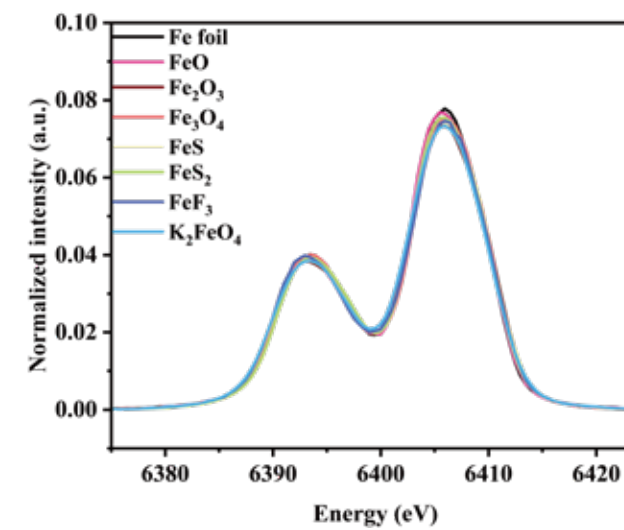
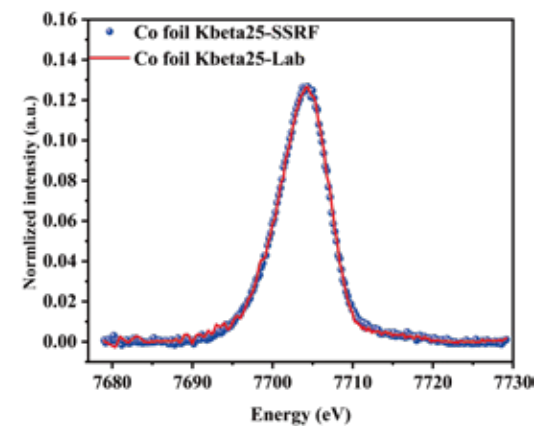
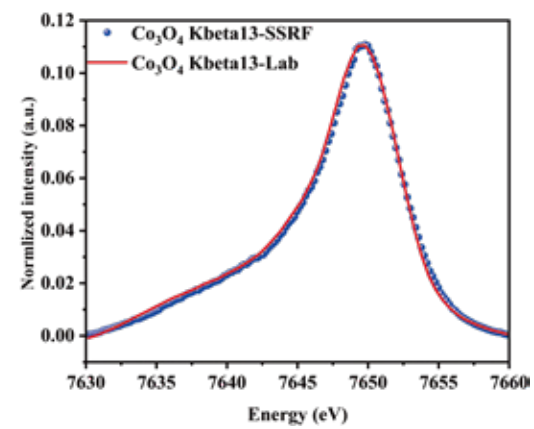
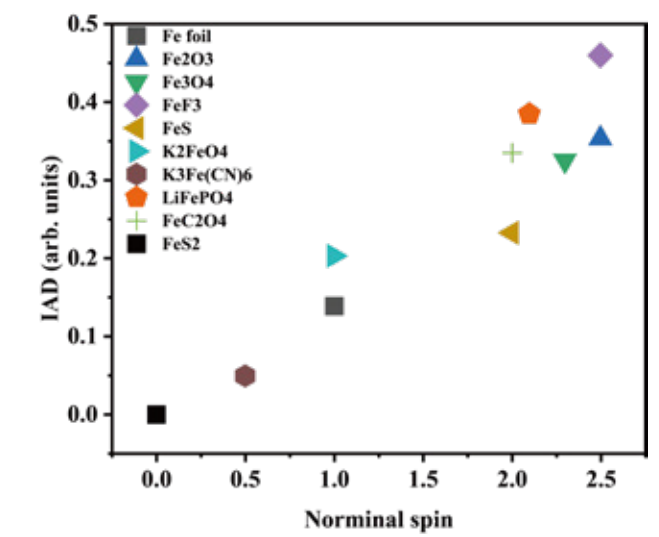
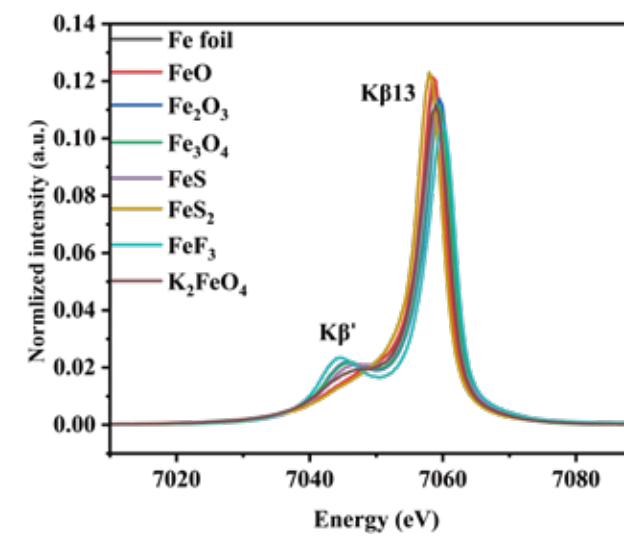
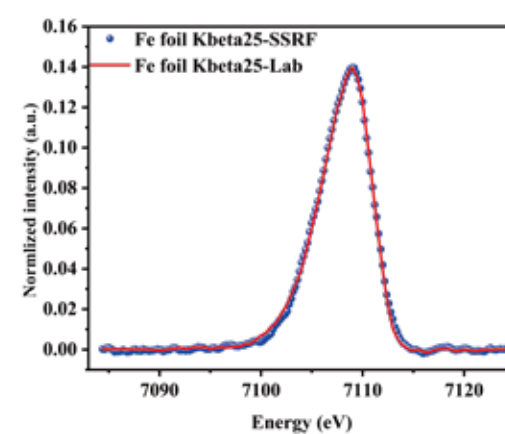
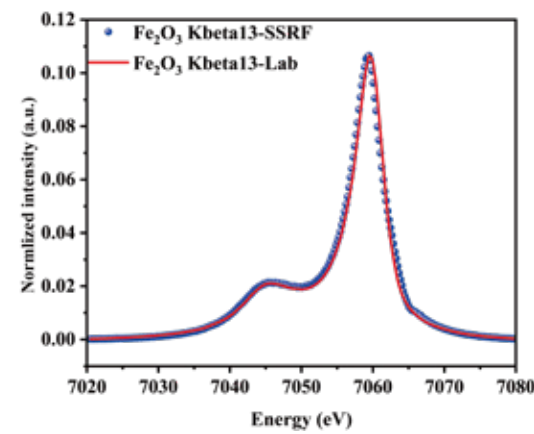
Thermocatalysis



Photocatalysis

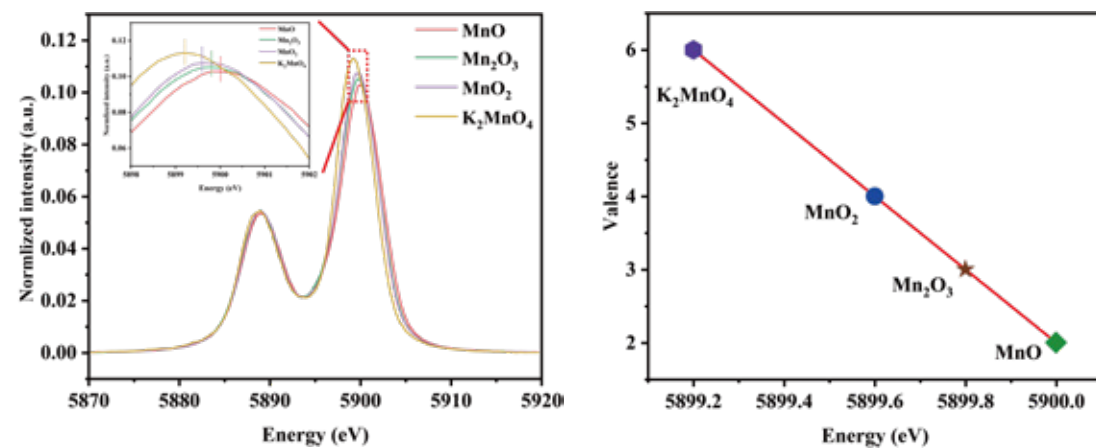
Standard Sample Data vs. Synchrotron

XES Test Data

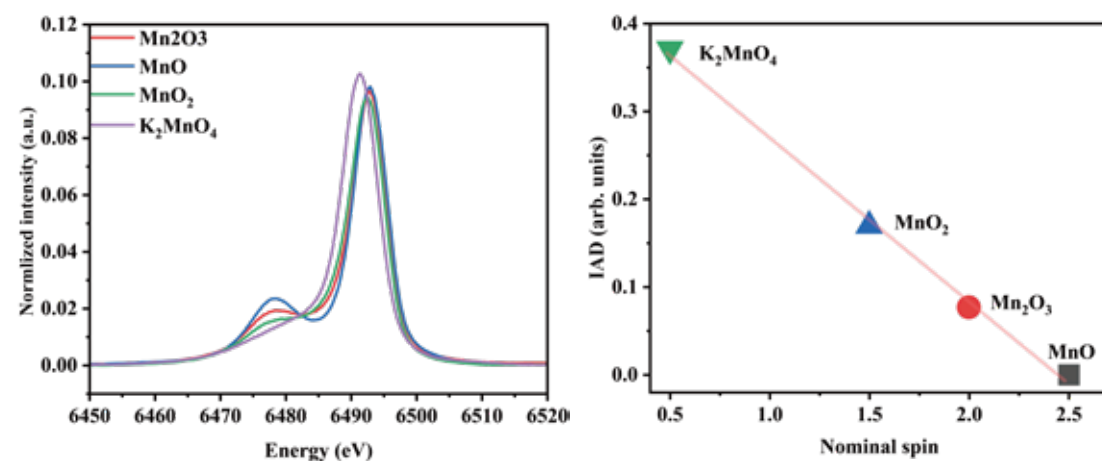


XES Test Data

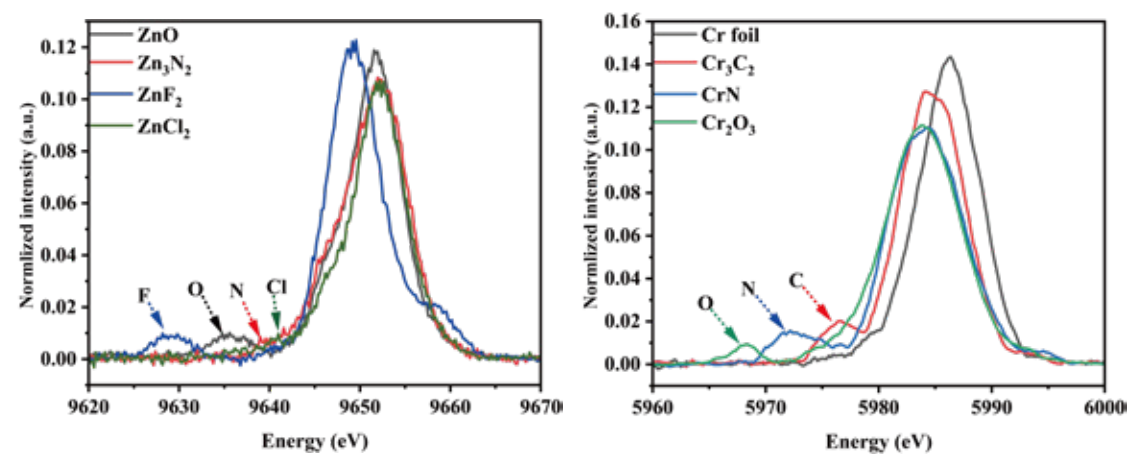
► Oxidation State Determination



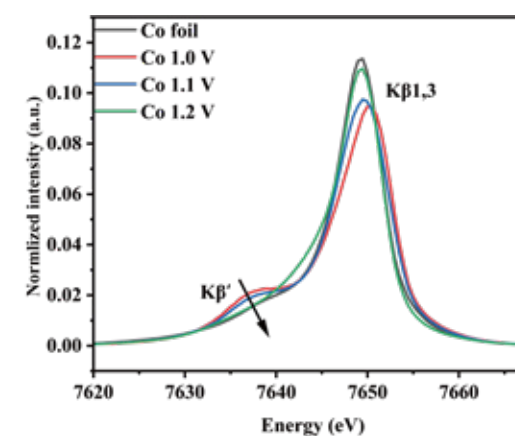
► Spin State Quantification



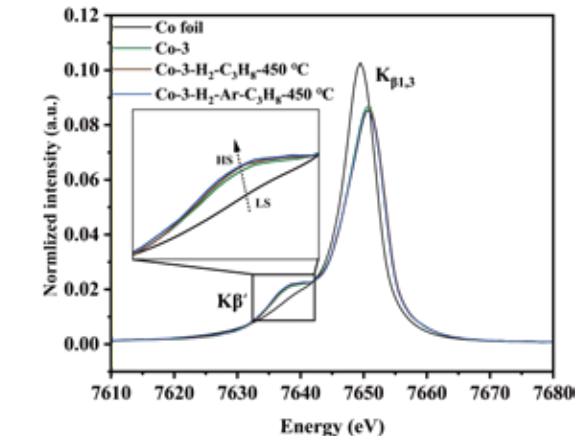
► Ligand Discrimination



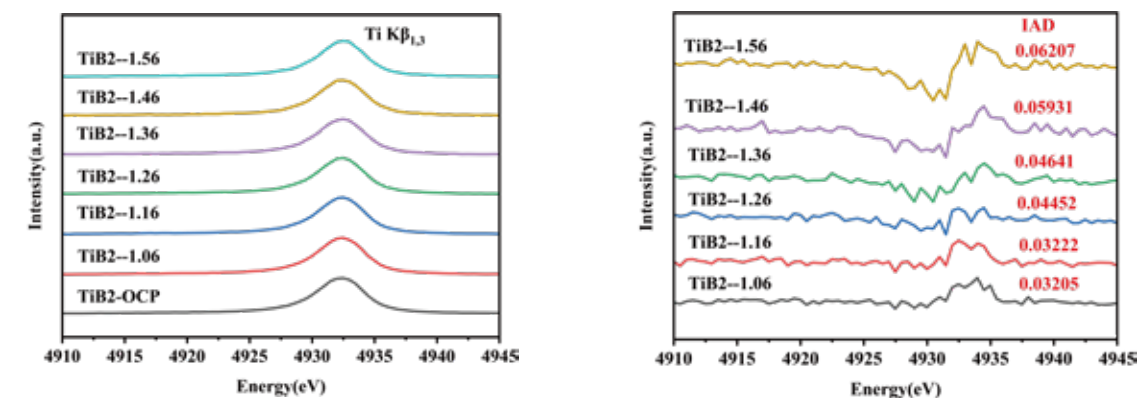
► In Situ Electrochemical Characterization



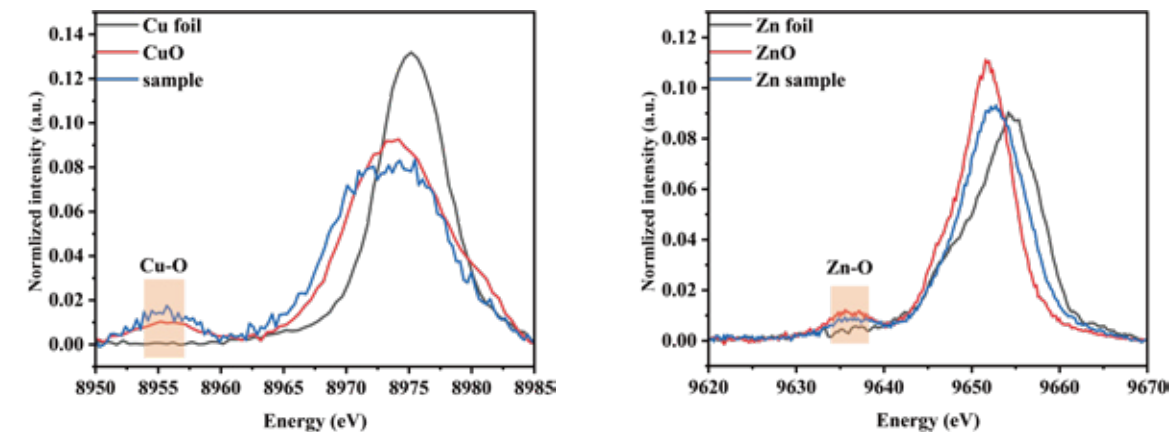
► In situ Thermocatalytic Characterization



► In Situ Electrochemical and Integrated Intensity Difference



► Ligand Identification in Single-Atom Catalysts



Specifications

Rapid XAFS 2M



Energy Coverage
4.5–20keV



X-ray Source Power
100W



High Energy Resolution
≤ 1 eV
(based on Cu Ka line)



Photocurrent Pair Rate
>10¹²/s



Measurement Modes
XES/XAFS





Energy Coverage
4.5–20keV



X-ray Source Power
4KW



High Energy Resolution
≤ 1 eV
(based on Cu Ka line)



Photocurrent Pair Rate
>10¹³/s



Measurement Modes
XES

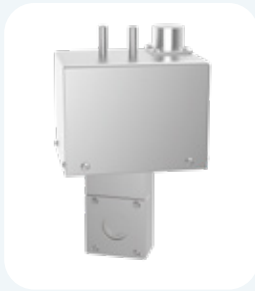


Rapid XES pro

In Situ XES Cell



XES Electrochem'cal cell



XES High temperature cell



Photo-catalysis cell



Battery cell

Elements Accessible by Rapid XES

1 H hydrogen	2 He helium	3 Li lithium	4 Be beryllium	5 B boron	6 C carbon	7 N nitrogen	8 O oxygen	9 F fluorine	10 Ne neon	11 Na sodium	12 Mg magnesium	13 Al aluminum	14 Si silicon	15 P phosphorus	16 S sulfur	17 Cl chlorine	18 Ar argon	19 K potassium	20 Ca calcium	21 Sc scandium	22 Ti titanium	23 V vanadium	24 Cr chromium	25 Mn manganese	26 Fe iron	27 Co cobalt	28 Ni nickel	29 Cu copper	30 Zn zinc	31 Ga gallium	32 Ge germanium	33 As arsenic	34 Se selenium	35 Br bromine	36 Kr krypton	37 Rb rubidium	38 Sr strontium	39 Y yttrium	40 Zr zirconium	41 Nb niobium	42 Mo molybdenum	43 Tc technetium	44 Ru ruthenium	45 Rh rhodium	46 Pd palladium	47 Ag silver	48 Cd cadmium	49 In indium	50 Sn tin	51 Sb antimony	52 Te tellurium	53 I iodine	54 Xe xenon	55 Cs cesium	56 Ba barium	57 La lanthanum	58 Ce cerium	59 Pr praseodymium	60 Nd neodymium	61 Pm promethium	62 Sm samarium	63 Eu europium	64 Gd gadolinium	65 Tb terbium	66 Dy dysprosium	67 Ho holmium	68 Er erbium	69 Tm thulium	70 Yb ytterbium	71 Lu lutetium	72 Hf hafnium	73 Ta tantalum	74 W tungsten	75 Re rhenium	76 Os osmium	77 Ir iridium	78 Pt platinum	79 Au gold	80 Hg mercury	81 Tl thallium	82 Pb lead	83 Bi bismuth	84 Po polonium	85 At astatine	86 Rn radon	87 Fr francium	88 Ra radium	89 Ac actinium	90 Th thorium	91 Pa protactinium	92 U uranium	93 Np neptunium	94 Pu plutonium	95 Am americium	96 Cm curium	97 Bk berkelium	98 Cf californium	99 Es einsteinium	100 Fm fermium	101 Md mendelevium	102 No nobelium	103 Lr lawrencium
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