MONTHLY REPORT

2025.05 University of Science and Technology of China

第8期



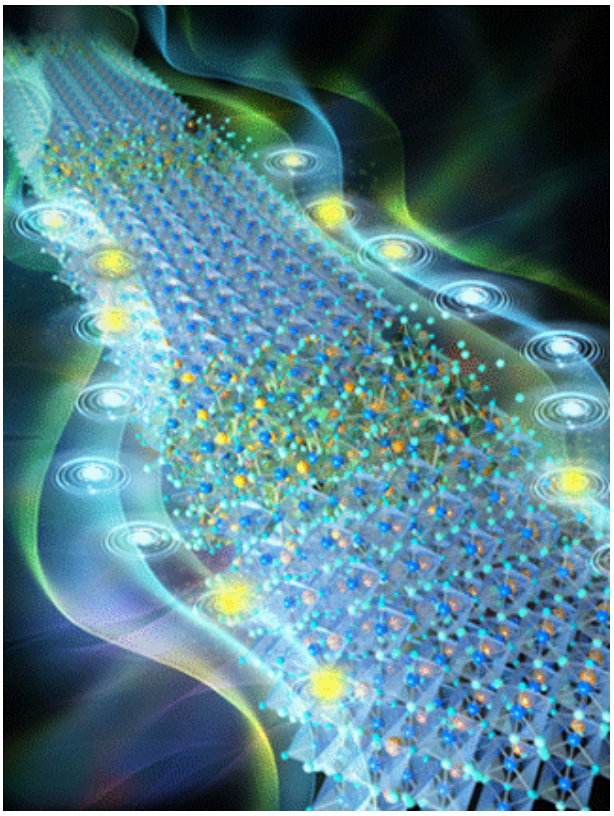
Abstract ◎ Research ◎ Activity ◎ Alumni

RESEARCH

May. 07

READ MORE

USTC Achieves High-Performance Pure-Red Perovskite LEDs via 3D Intragrain Heterostructure Design



A collaborative team from the University of Science and Technology of China (USTC) of Chinese Academy of Sciences (CAS), led by Prof. YAO Hongbin, FAN Fengjia, LIN Yue, and HU Wei, has resolved a critical challenge in pure-red perovskite light-emitting diodes (PeLEDs) by identifying and addressing the root cause of efficiency loss at high brightness.

Published in Nature on May 7, their study introduced a novel material design that enables record-breaking device performance, achieving a peak external quantum efficiency (EQE) of 24.2% and a maximum luminance of 24,600 cd m^{-2}—the brightest pure-red PeLED reported to date.

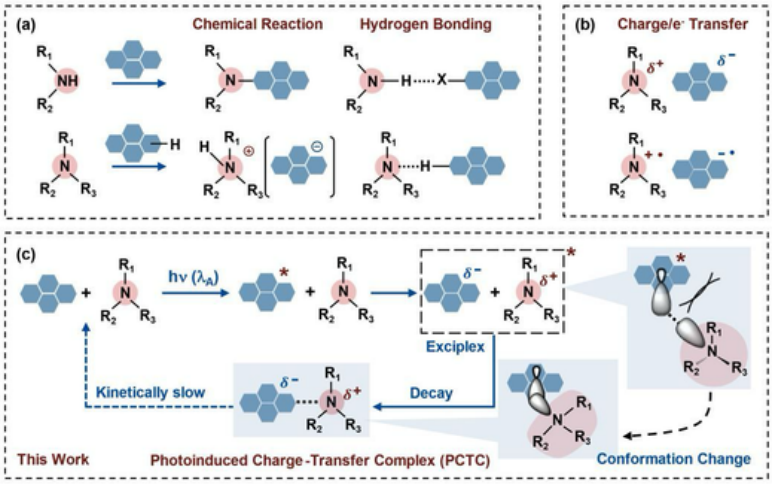
This work bridges a critical gap in perovskite optoelectronics, combining advanced diagnostics with innovative material engineering. Reviewers hailed the study as “a landmark in perovskite LED research,” emphasizing its methodological rigor and transformative results.

RESEARCH

May. 08

READ MORE

USTC Researchers Developed Rapid Fluorescence Sensing for Tertiary Amines and Opioids



Researchers from the University of Science and Technology of China (USTC), led by Professor ZHANG Guoqing, have developed a rapid fluorochromic sensing method for detecting tertiary amines and opioids. Their study was published in the *Journal of the American Chemical Society* on April 14.

The researchers developed a portable visual method for detecting natural and synthetic opioids, including heroin, fentanyl, methamphetamine, and metonitazene. Compared to traditional approaches like the Marquis reagent test, their method is faster, simpler, and more suitable for on-site and real-time monitoring.

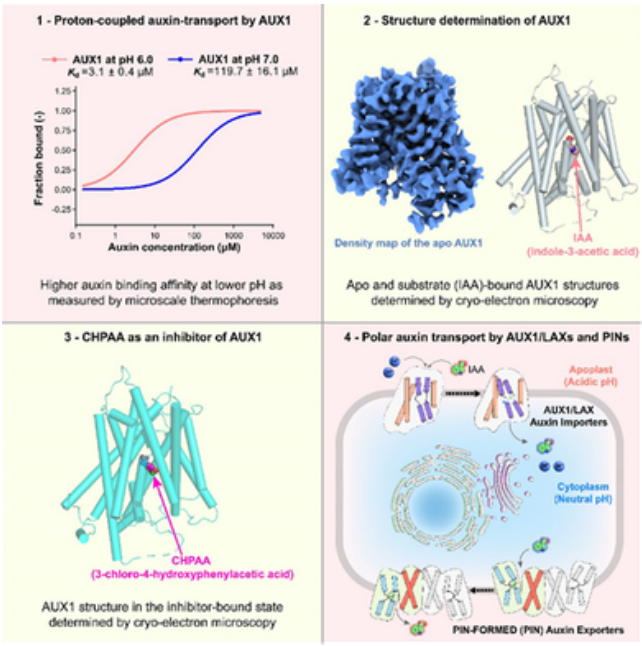
This work follows the group's earlier discovery of photoinduced charge-transfer complexes, offering further evidence of this phenomenon. It opens new possibilities for trace amine detection and rapid drug screening.

RESEARCH

May.15

READ MORE

Researchers Elucidate Mechanism of Auxin Influx in Plants



Research teams led by Prof. SUN Linfeng, Prof. LIU Xin, and Prof. TAN Shutang from the University of Science and Technology of China (USTC) of Chinese Academy of Sciences (CAS), have unveiled the structures of Arabidopsis AUXIN RESISTANT 1 protein (AUX1), and the molecular mechanism by which the protein transports auxin into the cell depending on the proton concentration gradient. The study has been published in *Cell* on May 15.

Researchers have elucidated the molecular mechanism of Arabidopsis PIN1, revealing how it recognized and exported auxin and how its function was competitively inhibited by NPA. They have also uncovered ABCB19 and ABCB1 were capable of exporting brassinosteroids—and systematically characterized the underlying mechanism.

To further investigate the role of H249 in substrate recognition and proton coupling, the teams collaborated with Prof. ZHU Lizhe' s team at the Chinese University of Hong Kong (Shenzhen) to perform molecular dynamics simulations.

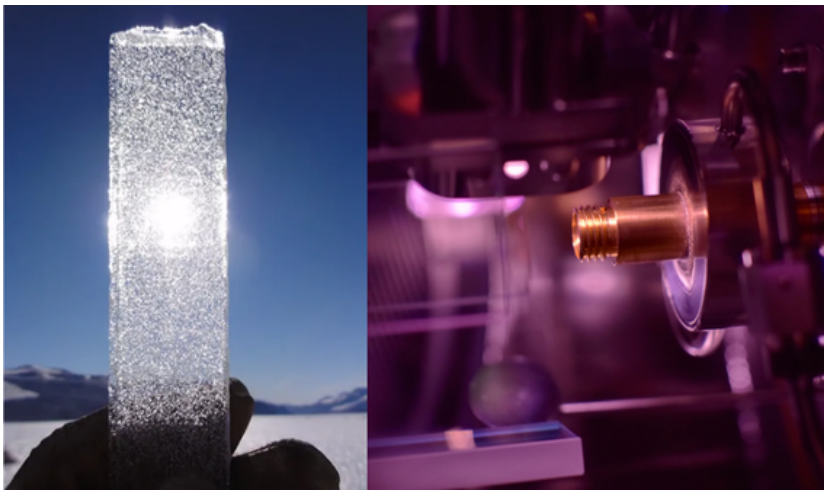
The study has revealed for the first time the molecular basis of auxin import mediated by the AUX1/LAX protein family in plants, which are essential for understanding plant growth and development, and future applications in agriculture.

RESEARCH

May.16

READ MORE

USTC Achieves Krypton-81 Dating of 1-Kilogram Antarctic Ice



A team led by Prof. Zheng Tianlu and Prof. Wei Jiang from the University of Science and Technology of China (USTC), have developed a novel technique known as All-Optical Atom Trap Trace Analysis.

In collaboration with American glaciologists, they have successfully performed krypton-81 dating on 1-kilogram samples of ancient Antarctic ice using this method. This advance provides a powerful new tool for studying paleoclimate changes on million-year timescales. The findings were published in the *Nature Communications*.

The USTC team is now working with glaciologists both in China and abroad to systematically apply the method to basal ice from Greenland, Antarctica, and the Tibetan Plateau. The new dating approach opens exciting research avenues for investigating Greenland ice sheet stability, the development timeline of Tibetan glaciers, and identifying ancient ice that spans the Mid-Pleistocene Transition—advancing both glaciology and paleoclimate science.

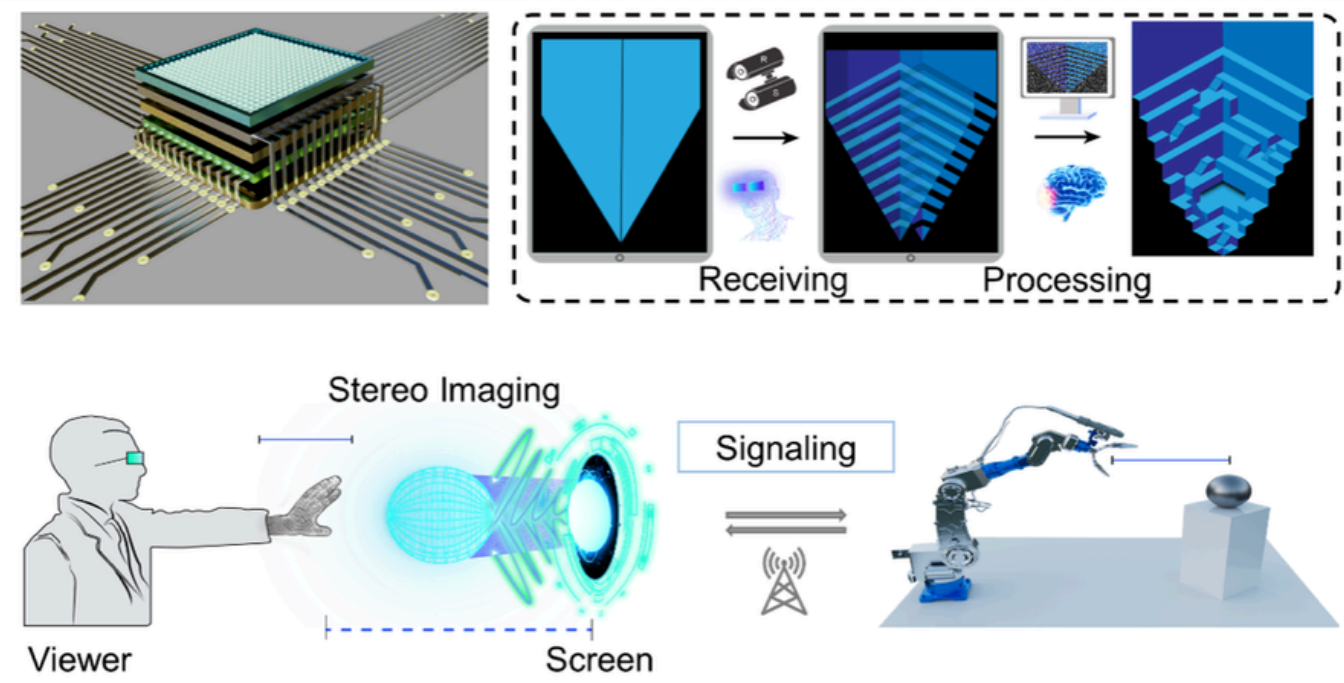
This achievement marks a successful collaboration between Chinese physicists and American earth scientists, uniting expertise in quantum physics and glaciology to advance global climate science.

RESEARCH

May.10

READ MORE

USTC Develops Self-positioning Microdevices for Adaptable Spatial Displaying



A team led by Prof. ZHUANG Taotao and Prof. YU Shuhong from the University of Science and Technology of China (USTC) developed an adaptable three-dimensional (3D) display panel using circularly polarized luminescence (CPL) devices. Their research was published in *Science Advances* as cover story.

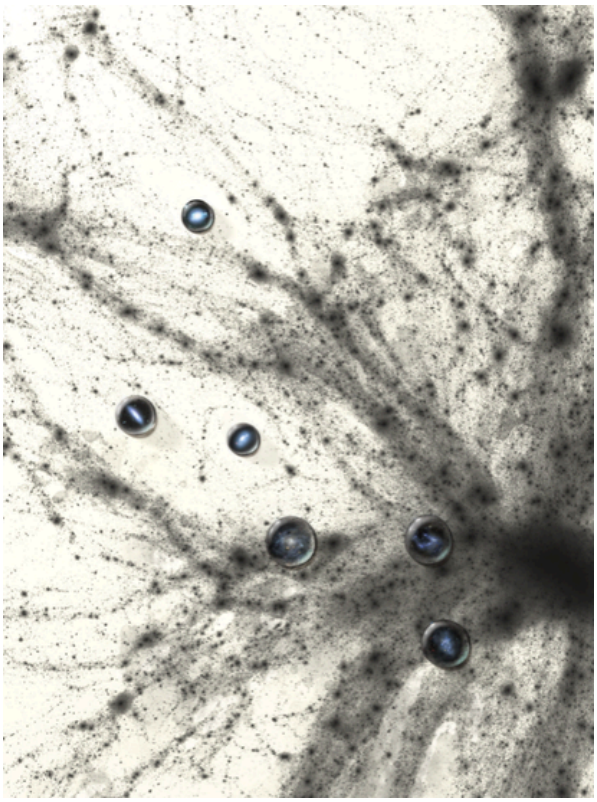
This work builds a crucial bridge between virtual and real-world environments, and holds broad practical prospects in scientific instrumentation, industrial equipment, medical electronics, and aerospace systems.

RESEARCH

May.21

READ MORE

Dwarf Galaxy Clustering Challenges Standard Cold Dark Matter Paradigms: Towards a self-interacting dark matter solution



A research team led by Prof. WANG Huiyuan from the University of Science and Technology of China (USTC) has made a groundbreaking discovery, identifying for the first time an exceptionally strong clusteringpattern in diffuse dwarf galaxies. Published in the prestigious journalNature, this significant finding poses new challenges to the prevailing galaxy formation models within the Λ-Cold Dark Matter (ΛCDM) framework.

This research represents the first observational confirmation of significant halo assembly bias—a critical breakthrough that offers unprecedented constraints for unraveling the nature of of dark matter, the evolution of cosmic large-scale structures, and the mechanisms governing galaxy formation and evolution. Crucially, it uncovers a unique correlation between the structures of baryonic components and the ages of their host halos in dwarf galaxies, fundamentally challenging the standard CDM paradigm and necessitating potential modifications.

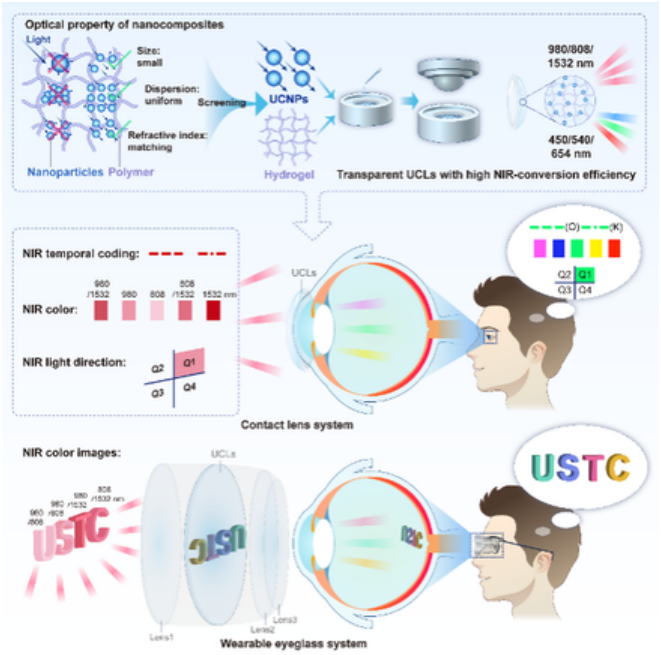
RESEARCH

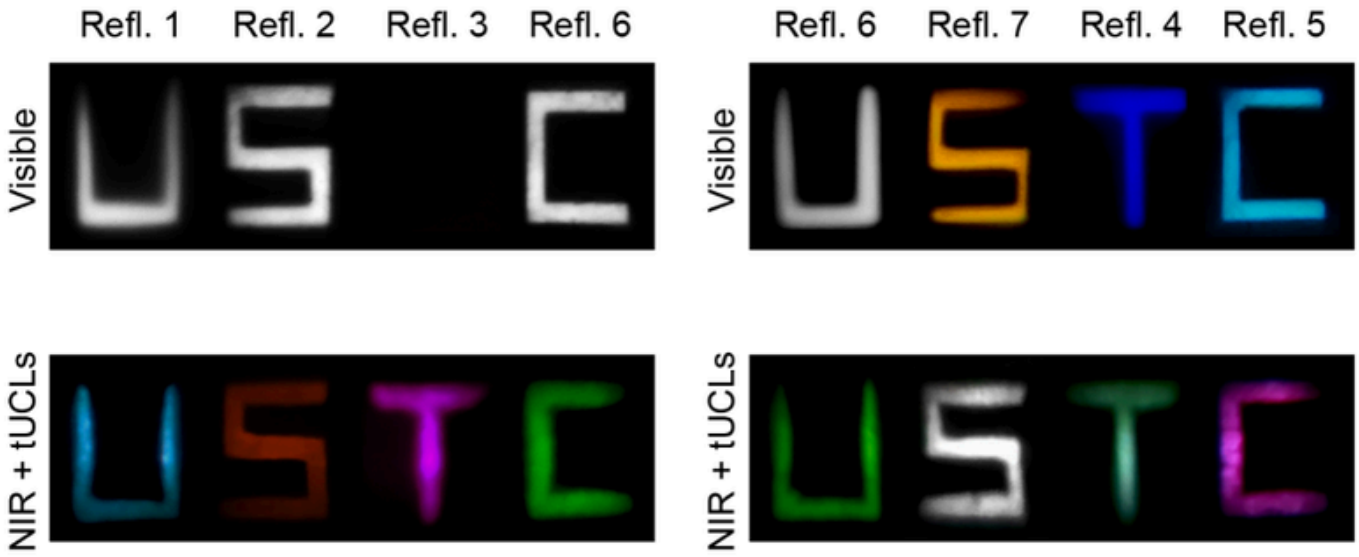
May.22

READ MORE

USTC Realizes Human Near-Infrared Color Vision via Contact Lens Technology

A research team led by Prof. XUE Tian and Prof. MA Yuqian from the University of Science and Technology of China (USTC), in collaboration with multiple research groups, has successfully enabled human near-infrared (NIR) spatiotemporal color vision through upconversion contact lenses (UCLs). The study was published online in Cell on May 22, 2025 (EST), and was featured in a News release by *Cell Press.*





ACTIVITY

Apr.27-28 READ MORE

Trip to Longma Village





From April 27 to 28, 2025, the Office of International Cooperation and the International College of the University of Science and Technology of China (USTC) jointly organized a themed social practice activity titled “Perceiving China - Visiting the Red Land and Observing the Blossoms of Revitalization.” The event took place in Longma Village, Yanzihe Town, Jinzhai County, Anhui Province—a village supported by USTC as part of its ongoing efforts to contribute to rural revitalization.



ACTIVITY

May.15

READ MORE

Mental Health Seminar

In an effort to enhance the mental health support system for international students, the International College of USTC, in collaboration with the USTC Mental Health Education and Counseling Center, successfully held a mental health seminar on the afternoon of May 15 in the 307 Lecture Hall of the International Building.









ACTIVITY

May.15-18 READ MORE

Cultural Journey to Huizhou





From May 15 to 18, USTC students joined the 13 th Annual Cultural Exploration for International Students in Anhui Province themed on “Hui Mountains, Hui Rivers, Hui Culture”, hosted by the Anhui International Student Education Association and co-organized by Huangshan University and Anhui University of Technology. Designed to deepen international students’ appreciation of Hui culture, this activity promotes meaningful cross-cultural exchanges and supports high-quality growth of international education in Anhui.





ACTIVITY

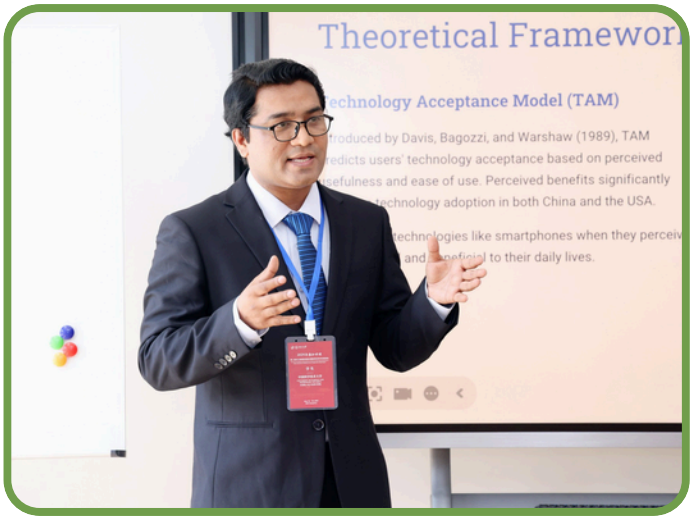
May.18-20 READ MORE

ZJU Experience China

USTC international students were invited to The Second Academic Forum for Advanced International Students of Higher Education Institutions in the Yangtze River Delta Region. The event offered a valuable platform for international young scholars from across the Yangtze River Delta to connect, learn, and grow together.









ALUMNI

Ali Totonchy

BL17204003

Management Science and Engineering

IRAN



From Academic Excellence to Real-World Impact: My Journey Beyond the Classroom

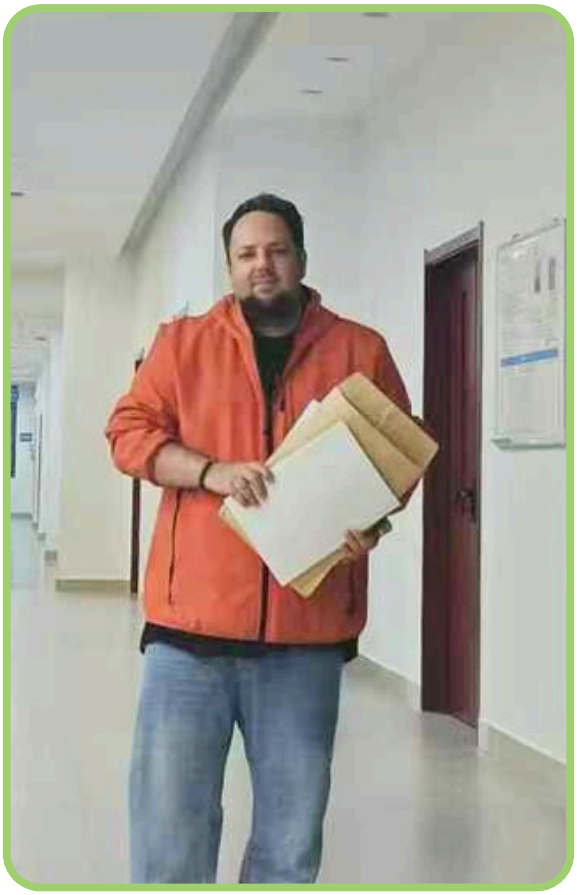


Earning my second PhD in Operations Engineering Management from the University of Science and Technology of China (USTC) wasn’t just another academic milestone—it was a continuation of my lifelong pursuit of knowledge, research, and innovation. My academic journey began with my first PhD in Business Administration from Huazhong University of Science and Technology in Wuhan, where I laid the foundation for an interdisciplinary approach to problem-solving and leadership.

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In addition to my doctoral studies, I hold a Master’ s degree in Communication in Social Sciences and a Bachelor’ s degree in English Literature. This diverse academic background has provided me with a broad foundation in management, human behavior, and strategic communication. It has shaped how I view leadership, business, and operational efficiency—helping me bridge the gap between theory and real-world application.

But for me, true success isn’ t measured by how many degrees I’ ve earned. Throughout my journey, I’ ve actively embraced leadership roles, hands-on problem-solving, and the development of practical skills outside the classroom. Whether I was assisting with university crisis management during the COVID-19 pandemic, leading chess tournaments, or transitioning into academia, I’ ve learned that adaptability, critical thinking, and real-world impact are what truly define a meaningful career.



I deeply believe in the power of continuous personal growth. I encourage students and professionals alike to look beyond traditional education—to build networks, learn new skills, and embrace multidisciplinary learning. Education, in my view, should never be confined to research papers or classrooms. It should be a launchpad for leadership, innovation, and meaningful contribution to society.

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Beyond the Classroom: A Well-Rounded Educational Journey

A strong academic foundation is incredibly valuable, but I’ ve always believed that true learning happens far beyond the lecture halls and research labs. My academic years weren’ t just about collecting degrees —they were about exploring new interests, engaging with different communities, and developing practical skills that later proved essential.

The library became my second home—a quiet space for deep research, reflection, and intellectual growth. But it was also where I formed lifelong friendships, reminding me that education is just as much about the people we meet as the knowledge we gain.

I also made it a point to stay actively involved in university life. The support I received from the International Office made a big difference—helping me navigate challenges and stay focused on my learning and future goals. I was fortunate to have professors and mentors who encouraged curiosity and critical thinking, which deeply enriched my experience.





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Leadership Beyond Academics: Making an Impact During COVID-19

The COVID-19 pandemic brought unexpected challenges to universities around the world. During that time, I stepped up to support crisis management efforts—helping implement safety protocols and assisting students through times of uncertainty. Later, I was honored to receive an official certificate of appreciation, but the real reward was knowing that my efforts made a tangible difference to the community.

This experience reinforced something I’ ve always believed: education is not just about personal advancement—it’ s about being able to serve and uplift others when it matters most.

Chess: Strategy, Competition, and Leadership

Chess has played a pivotal role in my personal and intellectual development. As the Chess Club Manager, I organized tournaments, mentored fellow players, and helped foster a strong, competitive community. Through this, I sharpened both leadership and strategic thinking skills.

For me, chess is more than a game—it’ s a discipline that teaches critical thinking, patience, and decision-making. These lessons translate directly into professional life, proving that intellectual hobbies outside the classroom can shape one’ s career in powerful, unexpected ways.

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The Second USTC International Chess Tournament
CHESS




USTC 1st International Chess Championship

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Advice for Students: Academic Success Alone Is Not Enough

One of the biggest misconceptions I’ ve seen among students is the belief that good grades and research achievements are enough to guarantee success. While academic excellence matters, it’ s just one piece of the puzzle.

If I could offer some advice to those looking to build a successful career, it would be this:

- Build relationships and expand your network – Career opportunities often come from people, not just credentials. Make time to connect with professors, peers, and industry professionals.
- Learn an additional language – Language skills unlock global career opportunities and enhance your ability to communicate across cultures.
- Master a sport, business skill, or art form – Pursuing excellence outside your field shows discipline, creativity, and passion—traits employers deeply value.
- Stay active in extracurricular activities – Club leadership, volunteering, and hands-on experience prepare you to navigate challenges far beyond the classroom.

Ultimately, success is about more than just exams and research papers. It’ s about combining knowledge with real-world skills and learning to adapt to the ever-changing demands of the professional world.

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A Natural Transition to Academia and Future Aspirations

After years of study and broad personal development, stepping into academia felt like a natural next step. For me, teaching is not just about passing on information—it’ s about helping students link what they learn in class to what they’ ll face in real life.

In my teaching, I strive to integrate research with industry insights and a practical approach. Courses like consumer psychology, service excellence, and digital transformation are designed not only to educate but also to prepare students for fast-changing industries and evolving customer expectations.

Looking ahead, my research will continue to focus on understanding consumer behavior, studying how industries undergo digital transformation, and bridging the gap between theory and practice. My goal is not simply to publish academic papers, but to provide insights that influence real-world business strategies and education systems.





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Final Thoughts: Success Comes from Balance

As I reflect on my journey, one thing stands out clearly: success isn’t about how many degrees you have or how many papers you publish—it’s about balance. The most fulfilled and impactful individuals are those who are not just experts, but also well-rounded, adaptable, and intentional about their path.

By combining academic excellence with personal growth, I believe that students and professionals alike can unlock broader opportunities and build more meaningful careers. Education is just the beginning—what truly matters is what we do beyond the classroom.



SHARE YOUR STORY !

WHAT YOU CAN SHARE

including but not limited to

- CAREER & RESEARCH
- LIFE AFTER USTC
- ENTREPRENEURIAL VENTURES
- CROSS-CULTURAL EXPERIENCES
- MEMORABLE USTC MOMENTS

FORMATS

- ARTICLES OR ESSAYS
- PHOTO STORIES
- SHORT VIDEOS
- INTERVIEWS

SUBMIT NOW!

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