POSTECH

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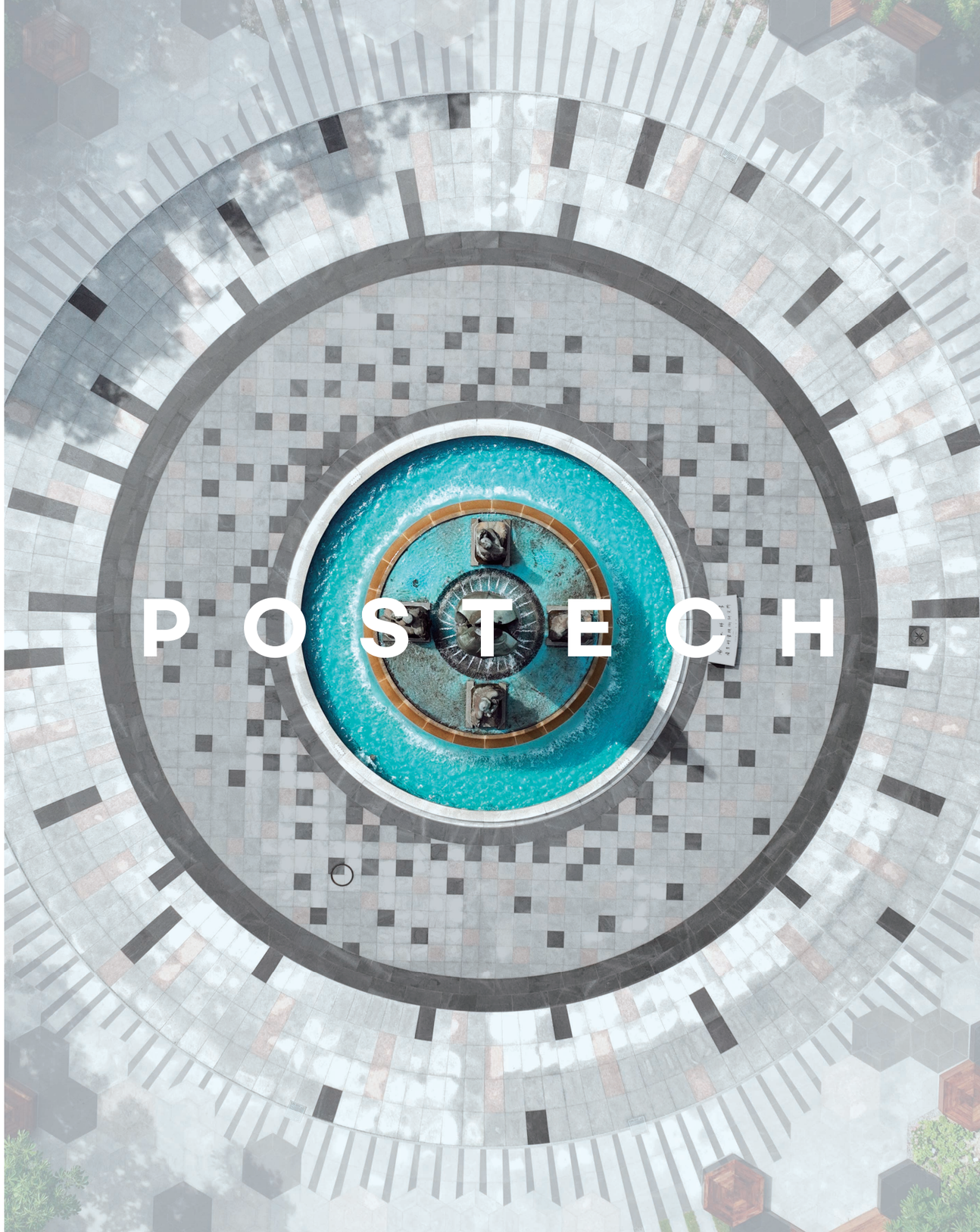

POSTECH
The Pathfinder

Transcending the boundaries of the world, we search for new paths.
We are Postechians, who drive change and light the way of innovation.

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Always the First

POSTECH has always dared to be the first. As the first research university in Korea, we pioneer better ways and break through obstacles with passion.

POSTECH believes in the power of science and technology that makes our future brighter.

Growth with Innovation

Innovation finds us in extraordinary ways. At POSTECH, creative minds come together to inspire one another and to help connect with the world beyond the lab.

Amazing and unimaginable innovation becomes a reality at POSTECH.

The FIRST

POSTECH
Pioneering a New Path

POSTECH has become a world-leading university that transforms the world through science and technology. Every step of innovation at POSTECH has been a step toward a new era.

1986

1986 ▸ Establishment of POSTECH (Korea's first research university)
1994 ▸ Completion of the first 3rd-generation synchrotron radiation accelerator in Korea; Advocate for reforming Korea's college admission system by allowing students to apply to multiple universities
1996 ▸ Introduction of Korea's first MS/Ph.D. integrated program

2000

2000 ▸ Establishment of Pohang Technopark (Collaborative project between Pohang City, POSCO, and POSTECH)

2005 ▸ Opening of the Graduate Institute of Ferrous Technology (GIFT), the only institute of its kind, now the Graduate Institute of Ferrous & Eco Materials Technology

2007 ▸ Opening of the National Center for Nanomaterials Technology (currently the National Institute for Nanomaterials Technology)
2008 ▸ First Korean university to introduce residential college where all freshmen live in dormitories

2010

2010 ▸ First Korean university to implement an admission officer system
▸ First Korean university to declare bilingual campus
▸ Introduction of a MOOC course credit-certification system
2011 ▸ Establishment of the Korea Foundation for Max Planck/ POSTECH Korea Research Initiative

2016 ▸ Completion of the world's third 4th-generation synchrotron radiation accelerator
▸ Introduction of an academia-industry collaboration professor system
2018 ▸ Matriculation of first class of freshmen with undeclared majors
▸ Launch of the Summer Experience in Society (SES) program
2019 ▸ First Korean university to establish a block-chain campus
▸ Establishment of the Graduate School of Artificial Intelligence

2020

2020 ▸ First Korean university to open a Bio Open Innovation Center (BOIC)

2021 ▸ Establishment of the Institute of Membrane Proteins (IMP)
2022 ▸ Opening of the Apple Developer Academy (the only one in Northeast Asia)
▸ Apple Manufacturing R&D Accelerator (the only one in the world)
▸ Establishment of the Department of Semiconductor Engineering
2023 ▸ Designated as a Glocal University
▸ Opening of the Graduate Institute of Ferrous & Eco Materials Technology
2024 ▸ Declaration of POSTECH 2.0

The BEST

Global Leader in Education and Research

Many education and research indicators and assessment results show the successful growth of POSTECH as a world-leading science and technology university, as well as a leading education and research institute.

1st

Education Investment per Student:
KRW 124 million per student
(among universities with over 3,000 students)

115%

Scholarship Award Rate
115% of undergraduate tuition fully covered

2nd

THE Small University Rankings:
2nd for two consecutive years (2023–2024)
3rd for three consecutive years (2019–2021)

KRW **10.8** billion per faculty

#1 Research Funding per Faculty in Korea
Total research funding: KRW 316.4 billion
Total number of faculty: 294
(as of February 2024)

1st

JoongAng Ilbo University Ranking
1st in Basic Science
1st in Engineering
(2024)

144 Research Institutes

Hub for Research-driven Education:
20 government-accredited research institutes & 124 university-approved research centers
(as of October 2024)

1st

Apple Academy in Northeast Asia & Global R&D Center:
Home to Northeast Asia's only Apple Academy and the world's first Apple Manufacturing R&D Accelerator

4.7 Students per Faculty Member

Student-to-Faculty Ratio (Undergraduates)
(as of October 2024)

Total research funding:
KRW **316.4** billion

Steady growth in research funding:
2021: KRW 261.4 billion
2022: KRW 298.7 billion
2023: KRW 316.4 billion

141 International Partners

International partner institutions in 40 Countries
Europe: 58, Asia: 60, North America: 17, Oceania: 4, Africa: 1, Latin America: 1

282 Startups

A total of 282 startups, including faculty-led ventures, with KRW 19.2 billion raised in investments
(2020–2023)

The NEXT

A Second Founding for the Future

With the resolve to reshape the university, POSTECH embarks on its Second Founding. Students transcend the boundaries of majors and disciplines, integrating knowledge, while our labs lead world-class research under the banner of 'Made in POSTECH'.
The POSTECH 2.0 Initiative is our commitment to empowering the nation through science and technology.

VISION 2036

A value-creating university that contributes to the lives of humanity

Ideal talent
Postechians with knowledge and wisdom, unafraid to take on challenges

Human Value
Cultivating fearless Postechians with wisdom and knowledge

+

Knowledge Value
Innovative research that challenges the present and shapes tomorrow

+

Socio-Economic Value
Creating future values that benefit society


Establishing Mueunjae education that transcends boundaries across disciplines inside and out


Made in POSTECH: Cultivating world-class research expertise


Creating and driving new industries for sustainable industry-academia collaboration and large-scale technology transfer

Securing sustainable growth drivers to boost competitiveness and achieve development goals

POSTECH 2.0

The Second Founding of POSTECH

Student/ Education Innovation
Education that breaks down barriers of disciplines, space, and time

+

Faculty/Research Innovation
More world-class scholars and enhanced research competitiveness

+

Management/ Infrastructure Innovation
Future campus for the next 50 years

Education that breaks down barriers across disciplines, space, and time

Founded on the late founding chairman Tae-Joon Park's vision to serve the nation through education, POSTECH now seeks to drive educational innovation that transcends the boundaries of disciplines, space, and time through its second founding.

Programs at POSTECH

Departments

Artificial Intelligence (AI)*
Bioscience and Bioengineering*
Chemistry
Chemical Engineering
Computer Science & Engineering
Convergence IT Engineering
Electrical Engineering
Environmental Science & Engineering*
Industrial & Management Engineering
Life Sciences
Mathematics
Materials Science & Engineering
Mechanical Engineering
Nuclear Engineering*
Physics
Semiconductor Engineering

*Only available at graduate level

Specialized Graduate School

Graduate Institute of Ferrous & Eco Materials
Graduate School of Information Technology

Transcending the boundaries of innovation, becoming the center of the world

All students admitted through an admission officer system Undeclared major system for all freshmen

Science & Technology Major Discovery Camp, Mueunjae School of Undergraduate Studies

POSTECH was the first in Korea to adopt an admission officer system, evaluating students' potential not only on scholastic aptitude, but on diverse factors and perspectives. To deepen students' understanding of academic fields, research, and career paths in science and engineering, POSTECH invites talented high school students to participate in the Science & Technology Major Discovery Camp every summer and winter break. Since 2018, the Mueunjae School of Undergraduate Studies has admitted all incoming freshmen as undeclared majors, allowing for a smoother transition to university life and offering time to explore academic departments before choosing a major.

No boundaries across disciplines, time, or space

Convergence Education, SES Program, OC Semester System

The POSTECH Open Curriculum offers students the freedom to customize tracks based their needs and in selecting a major. This flexibility allows students to combine various fields of study and design diverse career paths. Additionally, POSTECH provides apprenticeship programs such as the Summer Experience in Society (SES) Program, which provides on-the-job experiences and the Off-Campus (OC) Semester, allowing students to complete a semester outside the university.

Open Curriculum / School of Convergence Science and Technology

Major pillar of educational innovation of POSTECH 2.0

- Education without boundaries across disciplines, with self-designed curriculum
- Flexible, interdisciplinary convergence major tracks
- Strengthening educational competitiveness with POSTECH's unique and distinct programs

Entrepreneurship Support Programs

- **Empowerment**

Startup seminars, programs organized by student entrepreneurship groups APGC-Lab and Tech-Review.

- **Entrepreneurship Education**

Training to build entrepreneurial capacity, domestic and international market exploration, and JTBD innovation education

- **Idea Generation and Refinement**

Pohang Startup Club, POSTECH Startup Competition

- **Start-up Establishment and Growth Support**

Support for participation in international startup fairs, follow-up growth assistance

Pathfinder Program

CES, Nobel Week

Pathfinder Program is a grant that supports students in becoming global leaders in science and technology through vouchers for self-driven learning activities. Starting in 2024, incoming undergraduates will receive KRW 10 million to participate in academic events, world culture explorations, short-term studies abroad, and entrepreneurial activities. Key opportunities include the Consumer Electronics Show (U.S.) for experiencing cutting-edge technology and networking, and Nobel Week (Sweden), offering lectures by Nobel laureates and activities tied to the Nobel Prize award ceremony.

Voucher program

- **University or department-designed educational programs** : Study abroad, Summer/Winter Sessions, Nobel Week, CES, etc.
- **Team or individually designed activities** : Domestic and international academic events and training, world culture exploration, science and technology exhibitions, entrepreneurship activities, etc.

Entrepreneurship Courses and Support Programs

Interdisciplinary Minor in Entrepreneurship and Startup Bachelor's Program

POSTECH actively supports student startups through a strong foundation in entrepreneurship. The Entrepreneurship minor combines major-specific knowledge with business and entrepreneurship education, offering tailored training for aspiring startup founders at various levels. Students can benefit from programs like the Entrepreneurship Leave of Absence, Entrepreneurship Credit System, and Entrepreneurship Credit Exchange. These initiatives provide comprehensive support, including motivation, entrepreneurial education, and ongoing assistance to help grow their businesses.

Visionary Campus for the Next 50 Years

Customized infrastructures for innovative education and research

① Pohang Accelerator Laboratory
The only facility in Korea possessing both advanced light sources: the 3rd generation synchrotron radiation source (PLS-II) and the X-ray free electron laser (PAL-XFEL).

② POSTECH Biotech Center
As the largest private research institute among Korean universities, the center focuses on research in molecular medicine, plant biotechnology, and nanobiotechnology.

③ Bio Open Innovation Center
As an industry-academia-research collaboration institution, the center focuses on research in structure-based drug development, bioprinting of artificial organs, and stem cells.

④ National Institute for Nanomaterials Technology

The institute provides comprehensive support for research and development, industrialization, and training of experts in the field of nanomaterials and the materials industry.

⑤ FAB II
The center supports the advancement and upgrading of regional industries, with focus on next-generation intelligent semiconductors, graphene materials and applications, and smart manufacturing innovation.

⑥ Korea Institute of Robotics & Technology Convergence
The first specialized research institute in Korea for robotics production.

⑦ Graduate Institute of Ferrous and Eco Materials Technology
The premier specialized graduate school in the field of eco-friendly energy materials, focusing on secondary batteries and hydrogen.

⑧ Max Planck POSTECH/Korea Research Initiative
A research partner of the Max Planck Society in Germany, dedicated to nurturing and training global talent.

⑨ Institute of Membrane Proteins

The first research institute in Korea dedicated solely to studying membrane proteins and leading the development of new drugs.

⑩ Apple Developer Academy

An IT education institution established by Apple as the first of its kind in Korea, with the goal to support the growth of future developers, designers, and entrepreneurs.

⑪ Apple Manufacturing R&D Accelerator
The first center of its kind in the world, providing smart factory training and support for small and medium-sized enterprises (SMEs).

Support center for commercialization and startups in collaboration with the local community

⑫ POSCO CHANGeUp GROUND
With over 110 companies and more than 1,000 employees, it is a global startup hub, surpassing a total company valuation of 1.5 trillion won within just one year of opening.

The best campus living in Korea

⑬ POSTECH e-Sports COLOSSEUM

The first one of its kind in Korea where students compete in e-sports against peers from around the world.

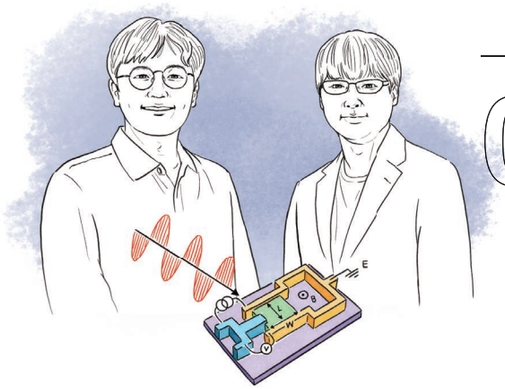
⑭ Log Cabin

The first pub that opened on a university campus in Korea, serving as a sanctuary where students connect and relax.

⑮ Dormitory and Graduate Student Apartments

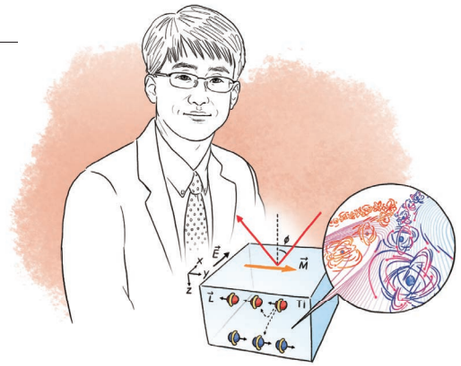
All students live on campus, with access to convenient amenities such as a movie theater, kitchens, and fitness facilities.

Creating the Light of the World and the Future: POSTECH Researchers and their Innovations



01

Professor Gil-Ho Lee and Gil Young Cho, Department of Physics - Nature (March 2022)
When light is applied to a very small solid, it enters a Floquet state, where its quantum properties change. The research team successfully maintained this Floquet state for an extended period using microwave (light), and quantitatively confirmed the changes in the Floquet state based on factors such as light intensity and wavelength.

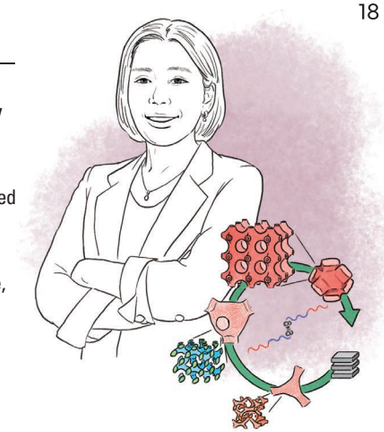


02

Professor Hyun-Woo Lee, Department of Physics - Nature (July 2023)
Challenging the conventional understanding that orbital angular momentum-based physical phenomena are difficult to occur in solids, Professor Lee proposed the possibility of developing a new magnetic memory device by utilizing orbital degrees of freedom.

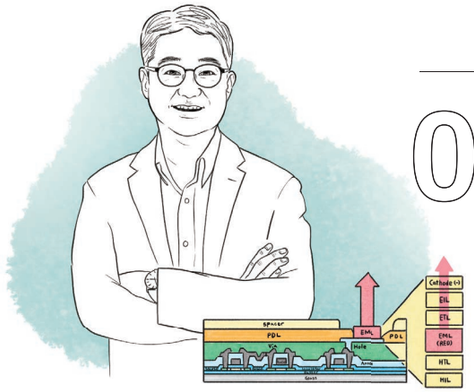
03

Professor Bumjoon Kim, Department of Physics - Nature (December 2023)
Most substances exist in three states: solid, liquid, and gas. Going beyond this conventional understanding, Professor Kim successfully observed the fourth state, “nematic,” in quantum materials, which simultaneously exhibits the characteristics of both liquid and solid, marking the world's first observation.



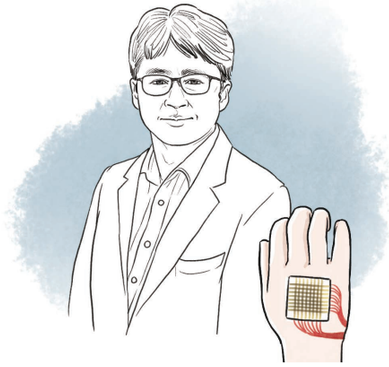
04

Professor Moon Jeong Park, Department of Chemistry – Science (January 2024)
Professor Park has realized complex and unique block copolymer nanostructures that were previously only imagined by researchers through polymer end-group modification. Notably, this work has attracted attention as the first successful realization of the ‘plumber’s nightmare’ structure, where all the polymer chains converge at the center.



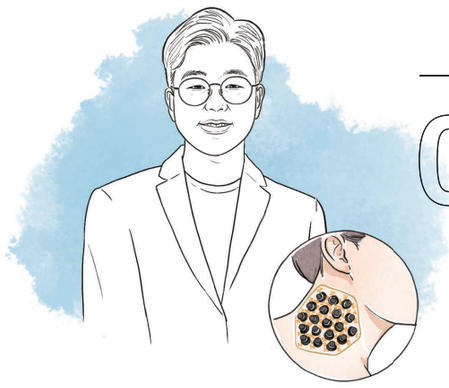
05

Professor Yong-Young Noh, Department of Chemical Engineering – Nature (April 2024)
Collaborating with the Korea Research Institute of Standards and Science and the Pohang Accelerator Laboratory, Professor Noh’s research team developed a Tellurium-Selenium composite oxide semiconductor material and successfully demonstrated a high-performance, high-stability p-type thin-film transistor (TFT). This research is expected to make a significant contribution to next-generation display and low-power memory technologies.



06

Professor Unyong Jeong, Department of Materials Science and Engineering – Science (August 2024)
In collaboration with North Carolina State University, Professor Jeong developed a process to print the natural oxide film of liquid metals on a large scale continuously. This breakthrough enabled the successful fabrication of foldable transparent electrodes and circuits with nanometer-thick layers that are resistant to scratches.



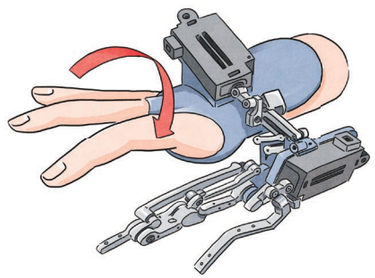
07

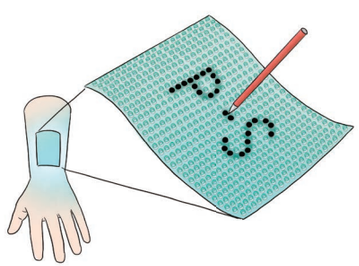
Professor Jintae Kim, Department of Mechanical Engineering - Nature (November 2024)
Through collaborative research with teams from Georgia Tech and Northwestern University, Professor Kim developed a wireless haptic device that adheres to the skin. This device alternates stably between pressure and expansion states, self-detects deformation, and offers excellent energy efficiency and significantly improves the accuracy of sensory stimuli.

08

Development of a Rotatable Robotic Prosthetic Arm

Professor Keehoon Kim's research team integrated the body part connected to the robotic prosthetic arm and introduced a rotation module. As a result, they successfully developed a prosthetic that moves more naturally and smoothly, with over a 30% improvement in functionality compared to existing prosthetics.





09

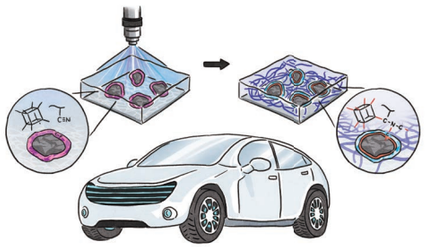
Development of a Mechanoluminescent, Power-Free Touchscreen

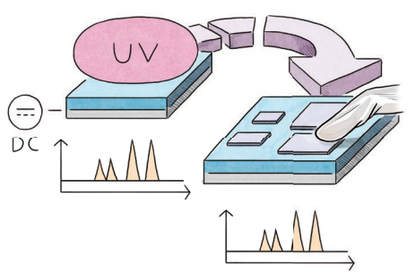
Professor Sei Kwang Hahn's research team analyzed the impact of trapped electrons and recharging on the emission and disappearance of light, uncovering the underlying mechanism. Based on this, they developed an optical display technology that allows users to write on the touchscreen with a small force from a finger press and erase the writing using ultraviolet light, similar to using an eraser.

10

Silicon-Gel Electrolyte System: Realizing the Dream of an Electric Car with a 1,000km Range

Professor Soojin Park's research team irradiated gel-type electrolytes with electron beams to form covalent bonds between micro-silicon particles and the gel electrolyte, dispersing internal stress caused by volume expansion. This silicon-gel electrolyte system, which enhances energy density by 40%, features a simple process and can be immediately applied.





11

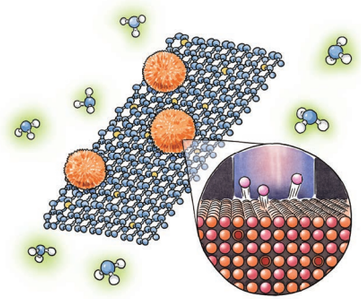
Limiting Charge Movement to Increase Electrostatic Duration by 30 Times

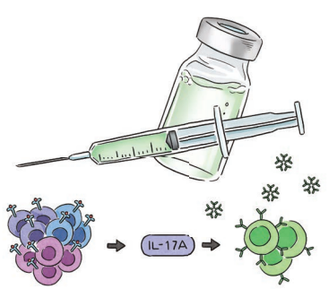
Electrostatic sensors, which utilize static electricity, do not require external power and are gaining attention as next-generation power sources for electronic skin and medical sensors. Professor Jin Gon Kim and Professor Unyong Jeong's research team successfully increased the electrostatic duration by approximately 30 times compared to previous methods by using ultraviolet light to create "deep traps" that limit the movement of charges.

12

Development of a Catalyst to Enhance the Efficiency of Eco-friendly Green Ammonia Production

Professor Won Bae Kim's research team developed a catalyst that improves the efficiency of eco-friendly green ammonia production through oxygen vacancy control and heteroatom doping. This technology is considered an effective and selective method for producing green ammonia.





13

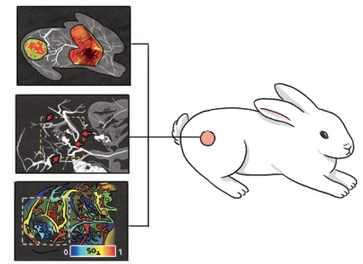
Preventing and Treating Influenza and COVID-19 with One Injection

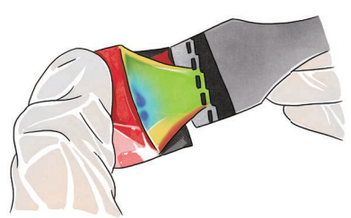
Professor Seung-Woo Lee's research team developed a new drug candidate for preventing and treating major respiratory viral infections. They focused on the long-acting recombinant cytokine protein rhIL-7-hyFc (NT-17), currently under clinical development as an immunotherapy, which can activate various immune cells in the respiratory system.

14

Development of Technology for Diagnosing and Treating Metastatic Cancer Without Surgery

Professor Chulhong Kim and Professor Won Jong Kim's research team successfully used 3D multi-parametric photoacoustic tomography technology, which can obtain structural and functional information of cells and molecules, to identify the location of metastatic cancer and changes in the surrounding microstructure without surgery.





15

Development of Chameleon-like Stretchable Electronic Skin

Professor Su Seok Choi's research team developed the first-ever technology for creating stretchable artificial skin that can change from a single color to multiple colors, similar to a chameleon's skin. This innovative technology uses chiral structures in optical elastomers and electrical stimuli. It is expected to have a wide range of applications, including in electronic skin, next-generation displays, encryption, biomimetic soft robots, and more.

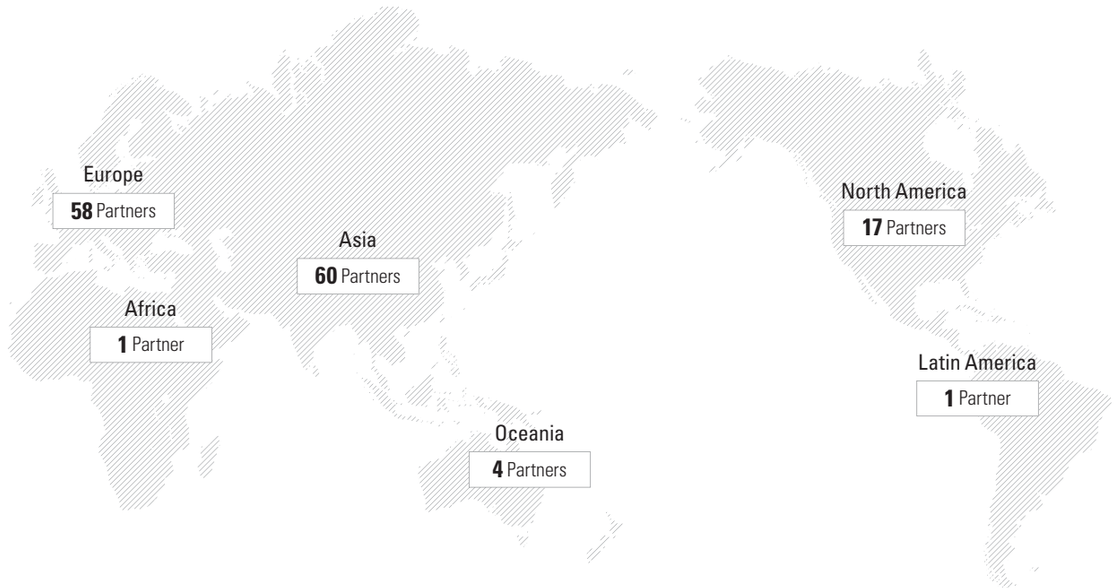
International Student Support

Tuition Waiver
Full tuition is waived for the first semester. If minimum GPA of 3.0/4.3 is maintained, the tuition waiver continues for the next semester(For undergraduates only).

On-campus Dormitory
100% of students are accommodated in the on-campus dormitory.

GKS Scholarship
Students can apply as GKS scholar, going through a separate application procedure. Please refer to the Study in Korea website.

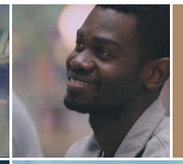
Bilingual Campus
The medium of instruction at POSTECH is English, and all notices and signs are provided both in Korean and English.



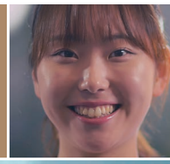
Global Partnerships

141 Partner Institutions in 40 Countries around the World





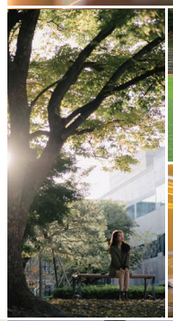
Fearless Postechians equipped with wisdom and knowledge





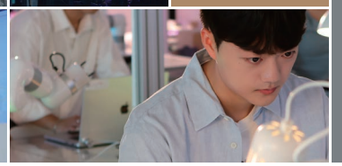



the Pathfinder







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