UNIST InnoCORE

Marine Carbon Upcycling-based Circular Chemistry Research Center

Postdoctoral Researcher Appointment Plan

May 2026

❍ Overview

The UNIST ECO InnoCORE Research Center seeks to recruit top-tier domestic and international talent who will contribute to the advancement of **marine carbon upcycling-based circular chemistry**, building on collaboration between UNIST and the Korea Research Institute of Chemical Technology (KRICT).

❍ ECO InnoCORE @ UNIST — Postdoctoral Researcher Appointment Plan

Research Group	Leader	Positions
Marine Carbon Upcycling-based Circular Chemistry (ECO)	Cho, Jaeheung	**10**
Desired field of recruitment: experts in sustainable catalytic chemistry		

❍ Composition of the Research Center

Group	Faculty / Researcher	Core research competencies	Role in this project
Subgroup 1 Marine CO_2 resource recovery	**Kwon, Tae Hyuk** (UNIST faculty) Website	Ultrasound-based heteroatom-doped catalysts on carbon supports; organic photocatalysts and solar-cell-based photo-/electro-chemical energy conversion	• Overall coordination of Subgroup 1 • Design of catalysts and photoelectrode systems for the direct conversion of dissolved marine CO_2 • Production of C2+ compounds via selective C–C bond formation • Construction of high-efficiency carbon-upcycling systems through reaction design based on Lewis acid–base and HSAB (hard–soft acid–base) principles
	Ryu, Ja-Hyoung (UNIST faculty) Website	Synthesis and application of functional, biodegradable polymers through precision design	• Conversion of CO_2-derived products into high-performance, eco-friendly polymer materials • Polymerization of carbon resources in conjunction with FLP (frustrated Lewis pair)-based electrocatalytic systems • Establishment of integrated conversion-to-materials processes
	Yoo, Changho (UNIST faculty) Website	Organometallic catalytic chemistry and CO_2-conversion-based small-molecule activation	• Design of catalysts that convert primary products (e.g., alcohols and ethylene) derived from marine CO_2 conversion into high-value-added chemicals • Design of highly selective, highly active conversion reactions using pincer-based catalysts • Elucidation of conversion-reaction mechanisms and derivation of catalyst design principles

Group	Faculty / Researcher	Core research competencies	Role in this project
	Lee, Geunsik (UNIST faculty) Website	First-principles calculations and electronic-structure-based materials design	• Elucidation of C2 product-formation mechanisms and electronic-structure-based catalyst design • Identification of candidate materials through AI-based catalyst modeling • Construction of an experiment–computation integrated catalyst-design platform
Subgroup 2	**Cho, Jaeheung** (UNIST faculty) Website	Biomimetic transition-metal catalysts and reaction mechanisms	• Overall coordination of the Research Center and of Subgroup 2 • Design of waste-plastic C–N bond-cleavage reactions using catalysts that mimic the active sites of marine microbial enzymes • Establishment of selective carbon-conversion reaction pathways and mechanism elucidation • Construction of high-efficiency, high-selectivity carbon-conversion systems and inter-research linkage
	Kee, Jung-Min (UNIST faculty) Website	Functional-molecule design integrating organic synthesis and chemical biology	• Cleavage of C–N bonds in polyurethane and nylon using biomimetic organocatalysts • Design of catalyst structures that mimic enzyme active sites • Improvement of the selectivity and efficiency of depolymerization reactions
	Hong, Sung You (UNIST faculty) Website	Transition-metal-catalyzed bond activation and design of high-efficiency reaction pathways	• Development of nickel-catalyzed selective cleavage of C–N and C–O bonds • Elucidation of depolymerization reaction mechanisms • Realization of highly selective plastic-decomposition reactions under low-energy conditions
	Min, Seung Kyu (UNIST faculty) Website	AI- and quantum-chemistry-based molecular dynamics and catalyst design	• Construction of catalyst databases and AI-based design of catalyst candidates • Reaction prediction and optimization based on experiment–computation feedback • Analysis of catalytic reaction mechanisms and improvement of design precision
Subgroup 3	**Cha, Hyun-Gil** Director, Center for Bio-based Chemistry, KRICT Website	Bio-based materialization and plastic-circulation technology	• Overall coordination of Subgroup 3 • High-value materialization of carbon resources derived from marine waste, and process application

Group	Faculty / Researcher	Core research competencies	Role in this project
			• Development of eco-friendly materials from recycled feedstocks and validation of industrial application • Construction of process systems linked to demonstration and commercialization
	Kim, Young-Hoon Senior Researcher, Center for Bio-based Chemistry, KRICT Website	Chemical recycling of waste plastics and depolymerization-based resource-recovery processes	• Construction of a marine waste-plastic pretreatment – depolymerization – feedstock-regeneration upcycling process • Pilot-scale process design and demonstration • Process optimization accounting for salinity, moisture, and degradation characteristics
	Park, Ji-Hoon Director, CO_2 Energy Research Center, KRICT Website	CO_2-conversion catalytic reactions; LOHC (liquid organic hydrogen carrier) materials and systems; electrification-based chemical processes and carbon-resource recovery	• Setting the technological direction of the marine-carbon-upcycling-based circular-chemistry platform and establishing marine CO_2-conversion strategy • Integrated catalyst–reaction–process design and coordination within KRICT • Design of electrification-based, distributed CO_2-conversion processes and establishment of demonstration-linkage systems
	Kim, Hyun-Tak Senior Researcher, CO_2 Energy Research Center, KRICT Website	Ultrasonic-spray-based catalyst synthesis; multi-active-site design; electrode-structure design for electro-/thermo-catalytic CO_2 conversion	• Design of CO_2-conversion catalysts and electrode materials based on marine carbon sources • Synthesis of multi-active-site catalysts, reactivity evaluation, and elucidation of operating mechanisms • Fabrication of large-area electrodes and process application based on performance enhancement

❍ Mandatory Eligibility Requirements for Submitting a Letter of Intent

Category	Details
Position eligibility	○ Postdoctoral research fellow: within 5 years of the date of conferral of the doctoral degree. ※ *However, even if more than 5 years have passed since conferral of the degree, an individual with outstanding competence in the relevant field may be appointed exceptionally following internal review by the Project Operating Committee.*
Eligibility for foreign nationals	○ Those who meet the eligibility requirements to apply for a work visa (E-3). ※ *(Eligibility) Holder of a doctoral degree (or one expected to obtain it).*
Common eligibility	○ No restrictions on age or gender. ○ Has completed or been exempted from military service as of the application deadline.

Category	Details
	※For postdoctoral research fellows, applicants who meet the requirements for automatic transfer as Professional Research Personnel may apply (including Professional Research Personnel currently serving via automatic transfer at the applying institute of science and technology at the time of appointment). ○ No disqualifications for overseas travel. ○ Not subject to any disqualification under the institute's personnel regulations, including a person who: – falls under any subparagraph of Article 33 of the State Public Officials Act; – is subject to an employment-restriction order under Article 56 of the Act on the Protection of Children and Youth against Sexual Abuse; – is subject to employment restriction under Article 82 of the Act on the Prevention of Corruption and the Establishment and Operation of the Anti-Corruption and Civil Rights Commission; – has not completed military service (excluding exempted persons and military-service special-case personnel) or is in default of military-service obligations under Article 76 of the Military Service Act; – had an appointment cancelled or was dismissed at another public institution for being hired through fraudulent means, where fewer than 5 years have passed since the date of cancellation or dismissal.

❍ Preferred Qualifications

Category	Details
Preferred	○ Overseas talent: – Obtained a doctoral degree from an overseas university or research institution (e.g., MIT, ETH Zurich, University of Tokyo); judged by the degree-conferring institution. – A researcher recently affiliated with an overseas institution (university, research institute, etc.) — including postdocs, research professors and visiting researchers, and including those planning to return to Korea or able to enter Korea conditional on domestic employment. – A foreign national or a researcher who was formerly an international student — holding foreign nationality qualifies as overseas talent regardless of where one has been active; foreign researchers currently residing in Korea may also be included. – A domestic doctoral-degree holder who spent a substantial period of the doctoral program (e.g., 1 year or more) at an overseas institution through joint research, internship, dual-degree programs, etc.

❍ Appointment Conditions

Category	Details
Place of work	○ Conclude an employment contract directly with UNIST and work alongside a mentor professor. *※Secondment for a defined period is possible for convergence research, etc., with a KRICT mentor participating in the Center.*
Position (rank)	○ Full-time postdoctoral researcher. *※Contracts are on a one-year basis (renewable up to a maximum of 5 years); the initial contract runs through the end of December 2026.*

Category	Details
Support provided	○ Personnel cost of KRW 90 million per year. ※ *This amount includes statutory employer contributions such as the four major insurances.*
Expected appointment date	○ Appointment expected on or after July 1, 2026.
Essential requirement	○ A person with no grounds for disqualification from appointment under the regulations.

❍ Applicants Who Should Take Special Note When Submitting a Letter of Intent

Category	Details
Applicable persons	○ Postdoctoral researchers and non-tenure-track faculty affiliated with domestic universities. ○ Contract researchers at government-funded research institutes.
Submission conditions	○ For some researchers affiliated with a domestic research institution at the time of submission, a Letter of Intent may be submitted if the consent of the current institution is obtained. ○ A Letter of Intent may be submitted if one of the following conditions is met: – the contract with the current institution is scheduled to end within 3 months; or – the contract is scheduled to end after 3 months, but consent to participate has been obtained from the current institution (e.g., academic advisor, principal investigator, or department head). ※ *However, appointment is possible only after the employment contract with the current institution has been fully terminated. If working days overlap between the two institutions, this may be regarded as unauthorized dual employment; dual-enrollment information for the National Pension, Health Insurance, etc. is reported automatically, which may result in administrative disadvantages.*

❍ Appointment Process

Steps ①–⑤ run on a rolling basis until the Center's appointment target (10 persons) is met.

Step	Content	Remarks
Step ①: Receipt of Letter of Intent	• Complete and submit the items of the Letter of Intent. • Access link: https://forms.gle/w721ny46QqEM8Gwd8	Online submission
Step ②: Internal review by the Center	• Review of interview candidates based on the submitted Letters of Intent. • Consultation on mentor adjustment: if too many applicants concentrate on one mentor, the mentor may be adjusted through consultation between the Center and the applicant.	
Step ③: Notification of interview candidates	• Once interview candidates are confirmed, schedules will be announced individually. • Interview candidates submit additional documents (research plan, recommendation letters).	Candidates notified separately
Step ④: Center interview	• Interviews are conducted online or offline (1–2 rounds planned).	–

Step	Content	Remarks
Step ⑤: Confirmation and verification of candidates	• Final candidates are confirmed and notified based on interview results. • Candidates submit supporting evidence for the items stated in their Letter of Intent and CV. • The Center verifies the authenticity of the evidence and checks for grounds of disqualification.	Candidates notified separately
Step ⑥: Final appointment	• Appointment proceeds according to UNIST's appointment procedures. • Appointment documents and related matters will be announced individually.	

❍ Documents to Submit

<table>
<tr><th>Document</th><th>Copies</th><th>Content</th><th>Remarks</th></tr>
<tr><td>Letter of Intent</td><td>1</td><td>• Submit online via Google Forms.</td><td rowspan="2">Submitted by all applicants</td></tr>
<tr><td>Curriculum Vitae (CV)</td><td>1</td><td>• May be submitted in a free format (submitted via the Letter-of-Intent link).</td></tr>
<tr><td>Research plan</td><td>1</td><td>• May be submitted in a free format in addition to the provided template.</td><td rowspan="2">Submitted only by interview candidates</td></tr>
<tr><td>Recommendation letters</td><td>2</td><td>• May be submitted in a free format in addition to the provided template.
※ For recommendation letters, a consent form for the collection and use of personal information is required.
<table>
<tr><th>Applicant category</th><th>Eligible recommenders (examples)</th></tr>
<tr><td>Postdoctoral researcher at a domestic university</td><td>Academic advisor or principal investigator (PI); department head or other position-holder</td></tr>
<tr><td>Non-tenure-track university faculty</td><td>Department head, or a principal investigator within the institution</td></tr>
<tr><td>Contract researcher at a government-funded institute</td><td>Department head, or a position-holder within the institute</td></tr>
</table>
</td></tr>
</table>

❍ Final Appointment

Stage	Details
Pre-appointment verification	○ The candidate's stated career details and any grounds for disqualification are reviewed; if there are no issues, the candidate is finally appointed. ○ If the review reveals issues, the appointment may be cancelled. ○ Even after final appointment is confirmed — or after the person has been appointed — the appointment may be cancelled if false career statements or forged/altered supporting documents are discovered, or if grounds for disqualification under Article 33 of the State Public Officials Act are found. ○ If a person whose final appointment has been confirmed cannot be normally appointed due to reasons such as loss of contact, they are deemed to have forfeited the appointment.
Final appointment	○ Postdoctoral researchers of the InnoCORE Research Center conclude contracts directly with the Ulsan National Institute of Science and Technology (UNIST) and are appointed in accordance with the institution's personnel regulations and appointment procedures.

❍ Other Notes

- The Letter-of-Intent submission link may be closed early without prior notice, depending on the status of postdoctoral appointments.
- Because the Letter of Intent cannot be modified after final submission, please verify your personal information and the documentary evidence for all stated career details before submitting.
- The applicant bears responsibility for any disadvantage arising from errors or omissions in the Letter of Intent, failure to meet eligibility requirements, inability to be contacted, failure to check interview notifications, and similar causes.
- Applicants are encouraged to submit with time to spare; the applicant bears responsibility if normal submission fails due to access errors or similar issues.
- If the contents of the Letter of Intent and CV differ from the supporting documents, if supporting documents cannot be submitted, or if false supporting documents are submitted, the applicant may be excluded from the candidate pool or the appointment may be cancelled.

❍ Inquiries

Institution	Email for submissions / inquiries
UNIST ECO InnoCORE Research Center	**unistecoinnocore@gmail.com**

< Research Plan > **You can add additional pages (up to 3 pages).**

Research Plan

Name		**Intended Mentor(s)**	
Research Topic			
(1) Necessity of Research ◦ Provide a brief description of domestic and global research trends, industrial demands, and the significance of the research project.			
(2) Research objectives ◦ Describe the research objectives you would like to achieve.			
(3) Goals ◦ Describe the ultimate goal you would like to achieve in your research.			

Day Month Year

Applicant Name: (Signature)

< Letter of Recommendation > A recommendation letter on the recommende r's official letterhead is also acceptable.

[Letter of Recommendation]

Applicant Name.		Contact Number	
Affiliation		E-mail	
Recommendation (in Detail)			

Relationship to the Applicant			
Recommender's Contact Number		Recommender's E-mail	

yyyy-mm-dd

Recommender's Affiliation :
Recommender's Position :
Recommender's Name and Signature : _____(sign)

< Consent for personal information >

Consent to the Collection and Use of Personal Information (for the Recommender)

UNIST collects and uses essential personal information for the purpose of verifying the authenticity of recommendation letters and confirming the identity of referees.
Please read the following information carefully and indicate your consent.

□ Consent to the Collection and Use of Personal Information

Purpose	To verify the authenticity of recommendation letters and confirm the identity of referees during the appointment process
Items	Name (in Korean or English), affiliation and position, contact number, email address, etc.
Retention and Use Period	Up to 180 days from the date the appointment is confirmed

※ You have the right to refuse consent to the collection and use of personal information. However, if you refuse consent, the referee will not be recognized.

Consent to the Collection and Use of Personal Information	_ ☐ Agree	_ ☐ Do Not Agree

Date: ___ / ___ /

Name: _____ (Signature or Seal)