

## Job Description [① Rodney S. Ruoff 연구단장 그룹, 선임연구원, 1명]

Workplace	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	Job Category (Level)	Research Staff (Senior Researcher)	Area of Hiring	Research (Carbon and related materials)
Work Duties	Crystal growth by Bridgman-type (Bridgman Stockbarger), Czochralski-type, and in general from metal flux: New methods to grow crystals of diamond and cubic boron nitride, large area single crystal graphite, large area single hexagonal boron nitride, others. Characterize crystals and describe the pioneer basic science in manuscripts submitted to peer-reviewed journals.				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	Crystal growth from metal flux. Materials Science, Materials Physics, Inorganic <i>and/or</i> Materials <i>and/or</i> Physical Chemistry				
Duties and Responsibilities	<p>The candidate is motivated to do cutting-edge research within the center's research area. The candidate is creative, courageous, and wants to contribute to pioneering, breakthrough, basic science.</p> <p>The candidate will meet several times weekly with Prof. Ruoff to talk research.</p>				
Knowledge Required	The candidate should have a deep and broad understanding of crystal growth from metal flux, of crystal growth, of characterizing crystals, of phase diagrams and phase equilibria.				
Competencies Required	The candidate should have a strong background in crystal growth from metal flux, a strong desire to make important discoveries in basic science and to pioneer new basic science. Experience with: Writing and completing manuscript(s) through the 'entire process' from a first draft through to an accepted paper in a respected journal: draft, revision process, submission to journal, review process, through to acceptance and publication in a journal.				
Attitude Required	The candidate should be passionate about crystal growth and growing crystals of diamond and cubic boron nitride by new methods using metal flux, and large single crystals of graphite and hexagonal boron nitride by new methods using metal flux, be creative, innovative, and has a deep desire to explore new science. There is an opportunity to learn certain computational methods as well, with the primary focus on growth of crystals by Bridgman-type, Czochralski-type, and other metal-flux based crystal growing methods including inventing new ones with Prof. Ruoff and team.				
Basic skills Required	The candidate should have strong written and verbal communication skills, and at times to mentor junior members of the research group. Be self-motivated and self-sufficient to contribute research ideas about projects either ongoing or new to the group, while intensely focusing on new crystal growth approaches to grow diamond, cubic BN, large size single crystal graphite and large size single crystal h-BN, and then others as the scientific progress continues.				
Qualification	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree</li> <li>- Major: Crystal growth from metal flux. Materials Science, Materials Physics, Inorganic <i>and/or</i> Materials <i>and/or</i> Physical Chemistry</li> <li>- Preference: Experience in crystal growth from metal flux and crystal growth in general. <u>What is most important is an intense desire to help find the path to these materials by entirely new crystal growth methods that involve the use of seed crystals and metal flux.</u></li> </ul>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

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※This position will remain open until filled.

## Job Description [② Rodney S. Ruoff 연구단장 그룹, 선임연구원, 1명]

Workplace	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	Job Category (Level)	Research Staff (Senior Researcher)	Area of Hiring	Research (Computational studies of carbon-related materials)
Work Duties	Theoretical studies of carbon-related materials via computational methods including density functional theory, density functional tight binding, molecular dynamics and/or machine learning force fields.				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	Computational materials science				
Duties and Responsibilities	The candidate must be motivated to carry out cutting-edge research within the center's research area. Including identifying new research areas/projects, following these projects through to completion and disseminating the results by writing and publishing scientific articles and presenting at scientific conferences.				
Knowledge Required	The candidate should have a deep and broad understanding of computational science, physics/chemistry and/or materials science.				
Competencies Required	<p>The candidate should have a strong background in computational modeling, physics/chemistry, and materials science, with expertise in atomistic simulations of materials. Competencies is expected in at least two of the following areas:</p> <ol style="list-style-type: none"> <li>1. Density functional theory (DFT) and/or density functional tight binding (DFTB) calculations (e.g., formation energies, reaction pathways, electronic/optical properties, phonon dispersion, high-throughput screening)</li> <li>2. Molecular dynamics (MD) simulations (e.g., thermodynamic, mechanical, and transport properties, phase diagrams, material growth)</li> <li>3. Machine learning methods for atomistic modeling, such as constructing machine learning force fields (MLFFs), generating datasets via active learning, and running MLFF-driven MD simulations.</li> </ol> <p>The candidate should have experience with DFT/DFTB software like VASP, Quantum Espresso, DFTB+ and/or MD software such as LAMMPS or GPUMD, and/or MLFF frameworks like DeePMD or NEP. Proficiency with Linux and programming languages such as Python (ASE), Julia, C/C++, or Fortran for data analysis, workflow automation etc. is expected. Additionally, the candidate must demonstrate a track record of successfully preparing and publishing manuscripts in peer-reviewed journals, from initial drafts to final acceptance.</p>				
Attitude Required	The candidate should be passionate about basic science and have a deep desire to explore new science and computational methods.				
Basic skills Required	The candidate should have strong written and verbal communication skills, computer/programming skills and be prepared to mentor junior members of the research group. Be self-motivated and self-sufficient to contribute with research ideas and projects either ongoing or new to the group.				
Qualification	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree</li> <li>- Major: Physics/Chemistry and/or Material Science</li> <li>- Preference: Completed at least one postdoc and has experience with machine learning force field and molecular dynamics.</li> </ul>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

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## Job Description [③ Christopher W. Bielawski 그룹리더 그룹, 선임연구원, 1명]

<b>Workplace</b>	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	<b>Job Category (Level)</b>	Research Staff (Senior Researcher)	<b>Area of Hiring</b>	Research (Synthetic chemistry)
<b>Work Duties</b>	Synthesis and characterization of novel organic and polymeric materials				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Policy research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	Synthetic organic chemistry, macromolecular chemistry, physical organic chemistry				
<b>Duties and Responsibilities</b>	This position will entail the synthesis and study of novel polymeric materials and related small molecules that are designed to facilitate the realization of new classes of carbon-based materials.				
<b>Knowledge Required</b>	The candidate should have experience with; (1) a broad range of synthetic methodologies, (2) multi-step synthesis; (3) Schlenk and other air-free techniques, (4) synthetic macromolecular chemistry, and (5) relevant contemporary characterization and separation techniques including NMR spectroscopy, FT-IR spectroscopy, UV-vis spectroscopy, thermal analyses, gel permeation chromatography, and mass spectrometry.				
<b>Competencies Required</b>	An ideal candidate will (1) hold a PhD in chemistry; (2) have multiple years of experience working on projects rooted in synthetic organic and synthetic polymer chemistry, (3) exhibit a strong motivation solve long-standing challenges that are related to the preparation of novel materials, (4) be listed as a co-author on multiple papers that have been published in top tier, peer-reviewed journals, and (5) have a strong command over the English language.				
<b>Attitude Required</b>	The attitude of the ideal candidate should (1) possess a positive mindset, (2) be focused on achieving goals in a realistic manner, and (3) respect and encourage fellow co-workers.				
<b>Basic skills Required</b>	Superlative laboratory skills, excellent communication and problem solving skills, abilities to establish meaningful and professional interpersonal relationships, and a strong code of ethics.				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree</li> <li>- Major: Chemistry, particularly organic chemistry or polymer chemistry</li> <li>- Preference: experience in the synthesis of organic and polymeric materials</li> </ul>				
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## Job Description [④ Rodney S. Ruoff 연구단장 그룹, 박사후연구원, 1명]

<b>Workplace</b>	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	<b>Job Category (Level)</b>	Postdoctoral Research Associate	<b>Area of Hiring</b>	Research (New ways to grow cubic boron nitride)
<b>Work Duties</b>	Metal flux-based crystal growth of diamond and cubic boron nitride using Bridgman-type and/or Czochralski-type growth systems, and new approaches that you and the team can invent. Basic science research.				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	Novel carbon materials including new allotropes of carbon (and related materials such as BN)				
<b>Duties and Responsibilities</b>	Intensely researching metal-flux based crystal growth (seeded, and seedless) using modified crystal growth systems (Bridgman-type, Czochralski-type, others that we invent). To follow the project(s) through to completion, including writing a high-quality draft of manuscript(s) and supplemental information document(s) describing the science done. The candidate will work with Prof. Ruoff and team on pioneering new methods to grow diamond and cubic boron nitride.				
<b>Knowledge Required</b>	<ul style="list-style-type: none"> <li>- Growth of crystals from metal-flux</li> <li>- Materials Science or Materials Physics, and/or Metallurgy, Inorganic or Materials Chemistry</li> <li>- Crystal growth</li> <li>- Structural Analysis</li> <li>- Various types of spectroscopies and methods to characterize the properties of materials</li> </ul> <p>Experience with: Writing and completing manuscript(s) through the 'entire process' from a first draft through to an accepted paper in a respected journal: draft, revision process, submission to journal, review process, through to acceptance and publication in a journal.</p>				
<b>Competencies Required</b>	Doctoral experience studying the growth of materials, and possibly in the use of metal flux methods to synthesize crystals. Strong background in synthesis/growth and structural analysis (diffraction, spectroscopies), and perhaps experience with metal alloying such as through molten metals; experience with a wide variety of experimental methods used for the study of synthesized materials.				
<b>Attitude Required</b>	The candidate can think for themselves, has strong self- initiative, excellent work ethic, works well individually and at times with others, and speak/write English well. (This experimental effort will be strongly supported by theoretical modeling by team members and collaborators. The candidate has an opportunity to learn about such modeling.)				
<b>Basic skills Required</b>	The candidate should have communication skills, problem-solving ability, interpersonal skills, technical competence, and professional ethics.				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: Inorganic or Materials Chemistry, Materials Science, Metallurgy and related majors</li> </ul>				
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## Job Description [⑤ Rodney S. Ruoff 연구단장 그룹, 박사후연구원, 1명]

Workplace	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	Job Category (Level)	Postdoctoral Research Associate	Area of Hiring	Research (Diamond nanowires, diamond filaments)
Work Duties	Growth and characterization of <i>diamond</i> fibers, that also might be called diamond nanorods, diamond nanofilaments, diamond micro- or nanofibers, etc.				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Policy research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	<p>Inorganic or materials chemistry, materials science, physical chemistry and/or materials physics It is well known that carbon nanotubes can be grown in a variety of ways (VLS, SLS), and that silicon and germanium ‘microwires’ can be grown by the Vapor-Liquid-Solid (VLS) method (Wagner and Ellis, 1956) and nanowires of Si, Ge, SiC (all tetrahedrally bonded ‘diamond’ structures), and many other materials can be grown that are <u>not</u> nanotubes. <b>Can diamond fibers, nanowires, microwires (that could have a variety of names—after we grow them we can name them) be achieved by ‘bottom up’ synthesis?</b> You and Prof. Ruoff will find the way.</p>				
Duties and Responsibilities	<p>The candidate must be motivated to carry out <u>cutting-edge</u> research within the center's research area. This includes discovering new ways to grow diamond fibers, following this project and other related projects through to completion and disseminating the results by writing and publishing scientific articles and presenting at scientific conferences. The candidate will meet frequently with Prof. Ruoff to <i>find our way to new diamond fibers</i>.</p>				
Knowledge Required	The candidate should have a deep and broad understanding of materials synthesis, and a strong background in characterizing materials. A background in growth of CNTs, BNTs, carbon fibers, VLS, VSS growth methods, could be helpful.				
Competencies Required	The candidate should have a strong background in materials growth and characterization Proven experience with: Writing and completing manuscript(s) through the ‘entire process’ from a first draft through to an accepted paper in a respected journal: draft, revision process, submission to journal, review process, through to acceptance and publication in a journal.				
Attitude Required	<b>The candidate should be passionate about basic science and have a deep desire to explore new science.</b> If interested in expanding one’s knowledge to include computational modeling, this is welcomed but not a requirement. The candidate should be <u><b>courageous and greatly enjoy challenges and pioneering basic science research.</b></u>				
Basic skills Required	The candidate should have strong written and verbal communication skills, excellent lab skills and the ability to mentor junior group members at times. Be self-motivated and self-sufficient to contribute with research ideas and a constant <b>desire to be creative and productive.</b>				
Qualification	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: Inorganic and/or Materials and/or Physical Chemistry, and/or Materials Physics, and/or Materials Science and related majors</li> <li>- Preference: Experience making and studying materials including reaction pathways and mapping out kinetics and the energy landscape for important reaction pathways <u>that achieve diamond fibers.</u></li> </ul>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

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## Job Description [⑥ Rodney S. Ruoff 연구단장 그룹, 박사후연구원, 1명]

Workplace	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	Job Category (Level)	Postdoctoral Research Associate	Area of Hiring	Research (Porous carbon and porous boron nitride materials)
Work Duties	Synthesis and characterization of porous carbon and boron nitride materials				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	Synthesis and analysis of porous carbon materials including potentially with Schwartzite structure. Negative curvature carbons. Synthesis of appropriate templates for templating novel porous carbons (zeolites, others), such as to generated “zeolite templated carbons (ZTCs)”				
Duties and Responsibilities	<p>Identify and pursue good approaches to growing atom-thick trivalently bonded C with continuous inner and outer surfaces as a new porous material, and trivalently bonded B and N with the same types of structure (but not necessarily identical).</p> <p>The candidate must be motivated to carry out cutting-edge research within the center's research area.</p> <p>The candidate will talk frequently with Prof. Ruoff about research.</p>				
Knowledge Required	The candidate must have a deep and broad understanding of <b>chemical and materials syntheses and characterizations and prior experience on templated growth of porous carbons.</b>				
Competencies Required	<ul style="list-style-type: none"> <li>• Deep experience and capable in <i>chemical synthesis of templated porous carbons</i></li> <li>• Clear and logical thinking</li> <li>• Intense desire to be creative and to do pioneering basic science research</li> </ul> <p>Proven experience with: Writing and completing manuscript(s) through the ‘entire process’ from a first draft through to an accepted paper in a respected journal: draft, revision process, submission to journal, review process, through to acceptance and publication in a journal.</p>				
Attitude Required	The candidate should be passionate about basic science and have a deep desire to explore new experimental and computational methods.				
Basic skills Required	The candidate should have strong written and verbal communication skills, computer/programing skills and be prepared to mentor junior members of the research group. Be self-motivated and self-sufficient to contribute with research ideas and projects either ongoing or new to the group.				
Qualification	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: Physics and/or Material Science and related majors</li> <li>- Preference: Experience in theoretical studies of carbon materials via machine learning force field.</li> </ul>				
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## Job Description [⑦ Rodney S. Ruoff 연구단장 그룹, 박사후연구원, 1명]

<b>Workplace</b>	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	<b>Job Category (Level)</b>	Postdoctoral Research Associate	<b>Area of Hiring</b>	Research (Computational studies of carbon dissolved in liquid metals, and of carbon and related materials)
<b>Work Duties</b>	Computational/theoretical studies of the dissolution and thus solubility and diffusion of carbon (and perhaps later, B and N atoms) in a variety of liquid metals (including liquid alloys), using atomistic molecular dynamics, first-principle calculation and machine learning.				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Policy research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	Computational Materials Science				
<b>Duties and Responsibilities</b>	Exploring how carbon dissolves in liquid metals and alloys by atomistic modeling; calculating thermodynamic and kinetic properties/parameters, learning from the atomic structure, charge distribution, etc., and following through on such pioneering studies (including through constant discussions with Professor Rodney S. Ruoff and Prof. Geunsik Lee) to writing a high quality draft of manuscript(s) and supplemental information document(s) describing the science done, to eventual submission to journal(s), and then through the revision and response to reviewer comments, to achieve pioneering and important publications.				
<b>Knowledge Required</b>	The candidate should have a deep & broad knowledge in computational materials science, and/or computational chemistry; and a strong background in condensed matter physics.				
<b>Competencies Required</b>	The candidate should have a strong background in computational materials science and/or computational chemistry and condensed matter physics. Expertise in performing first-principle calculations and molecular dynamics are needed together with the ability to scientifically analyze the results. Experience in applying machine learning to atomistic simulations, such as machine learning force fields is a plus. Capable of studying the solvation of carbon in liquid metals through computational modeling. Ability to calculate/analyze electronic structures details associated with dissolved carbons; and to convey results to theory colleagues (also experimentalists). The candidate should demonstrate that they have experience writing a scientific manuscript by explaining in their application which papers they have written, and revised, that are their publication list.				
<b>Attitude Required</b>	The candidate should be passionate about basic science and have a deep desire to pioneer new science.				
<b>Basic skills Required</b>	The candidate should have strong written and verbal communication skills, be prepared to mentor one or perhaps two junior members of the research team, and be self-motivated to contribute their ideas and knowledge to other projects underway in the group. That is: to be both independent as well as helpful.				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: Chemistry, Material Science, Physics</li> <li>- Preference: Doctoral experience in study of carbon materials, first-principle calculations and machine learning. Those who have a track record of high impact publications are particularly encouraged to apply.</li> </ul>				
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<b>Workplace</b>	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	<b>Job Category (Level)</b>	Postdoctoral Research Associate	<b>Area of Hiring</b>	Research (Physics-Informed AI for carbon-related materials)
<b>Work Duties</b>	Development of physics-based artificial intelligence (AI) methods to predict phase diagrams of multi-component systems, including binary and ternary systems. Including design and implementation of machine learning (ML) models incorporating thermodynamic principles and quantification of uncertainty. Additional responsibilities include publishing research results in scientific journals and presenting at international conferences.				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	Design and implementation of physics-informed AI models incorporating thermodynamic constraints for phase diagram prediction of multi-component systems.				
<b>Duties and Responsibilities</b>	The candidate will conduct research on AI-driven phase diagram prediction ensuring integration of physical principles. They will integrate ML and CALPHAD to predict phase diagrams while leveraging uncertainty quantification techniques. The role includes working with thermodynamic datasets, designing and implementing ML models and testing these models in collaboration with CMCM researchers. In addition, the candidate must be motivated to conduct cutting-edge research within the center's research area, including identifying new research areas/projects, following these projects through to completion, and disseminating the results by writing and publishing scientific articles and presenting at scientific conferences.				
<b>Knowledge Required</b>	The candidate should have expertise in machine learning, deep learning, and scientific computing. Familiarity with thermodynamics/physics and CALPHAD is advantageous.				
<b>Competencies Required</b>	The candidate should possess strong problem-solving skills and the ability to apply AI techniques to scientific challenges while integrating physics-based constraints into ML models. Experience in high-performance computing and handling large-scale scientific datasets is essential. They should be eager to learn new concepts related to thermodynamics and CALPHAD-based modeling while demonstrating independence in research. The candidate should have a track record of publishing in peer-reviewed journals and presenting research at conferences. Effective collaboration skills are necessary, as they will work closely with CMCM group members. Additionally, the ability to communicate complex ideas clearly, both in writing and verbally, is important to facilitate interdisciplinary research and knowledge dissemination.				
<b>Attitude Required</b>	The candidate should be passionate about basic science and have a deep desire to explore new avenues for AI in science.				
<b>Basic skills Required</b>	The candidate should have strong written and verbal communication skills, computer/programming skills and be prepared to learn thermodynamics/physics. Be self-motivated and self-sufficient to contribute with research ideas and projects either ongoing or new to the group.				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: Computer Science or AI and/or Physics, Chemistry or Material Science</li> <li>- Preference: Experience in physics-informed AI models for science. Thermodynamics/physics and/or CALPHAD is a plus but not required.</li> </ul>				
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Workplace	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	Job Category (Level)	Postdoctoral Research Associate	Area of Hiring	Research (Mechanical properties measurements)
Work Duties	Measurement and analysis of the mechanical properties of <i>macroscale</i> single crystalline 2D materials such as graphene or n-layer graphene, and hBN and n-layer hBN. Basic science research.				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> </ul> <p>Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</p>				
Research Area	Investigation of the macroscale mechanical properties in 2D materials, specifically graphene, hBN, and their multilayer forms.				
Duties and Responsibilities	<p>We are seeking a postdoctoral research associate to address key challenges of mechanical properties measurements of macroscale 2D materials including graphene, hBN, and their multilayer forms. The successful candidate will investigate and characterize the mechanical properties of single crystalline 2D materials at the macroscale. Responsibilities will include identifying and developing innovative research directions focused on macroscale mechanical properties, executing projects from conception to completion, and preparing high-quality manuscripts and supplementary information for publication. This position offers opportunities to advance knowledge in crystallography and 2D material characterization, as well.</p>				
Knowledge Required	<ul style="list-style-type: none"> <li>• Mechanical Engineering and/or Materials Science and/or Physics</li> <li>• Study of the mechanical properties of materials including fracture mechanics</li> <li>• Structural Analysis</li> <li>• Various types of spectroscopies and methods to characterize the properties of materials.</li> </ul> <p>Experience with: Writing and completing manuscript(s) through the 'entire process' from a first draft through to an accepted paper in a respected journal: draft, revision process, submission to journal, review process, through to acceptance and publication in a journal.</p>				
Competencies Required	Doctoral expertise in measuring the mechanical properties of materials, perhaps including thin and ultra-thin films. Strong background in experimental mechanics and structural analysis (crystallography, spectroscopies).				
Attitude Required	The candidate can think for themselves, has strong self-initiative, excellent work ethic, works well individually and at times with others, and speak/write English well. (This experimental effort will be strongly supported by theoretical modeling by team members and collaborators. The candidate has an opportunity to learn about such modeling.)				
Basic skills Required	The candidate should have communication skills, problem-solving ability, interpersonal skills, technical competence, and professional ethics. The candidate should demonstrate in their submission for this position that they have experience writing a scientific manuscript, and revising, through the process of submission and eventual acceptance of a peer-reviewed manuscript.				
Qualification	<p>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</p> <p>- Major: Mechanical Engineering, Materials Science, Physics</p>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

※ This job description states major work duties of the hiring area. Work duties that are not stated here may need to be performed.

※ This position will remain open until filled.

## Job Description [⑩ Rodney S. Ruoff 연구단장 그룹, 박사후연구원, 1명]

<b>Workplace</b>	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	<b>Job Category (Level)</b>	Postdoctoral Research Associate	<b>Area of Hiring</b>	Research (Computational studies of carbon-related materials)
<b>Work Duties</b>	Computational/theoretical study of metal catalysts for chemical conversion to carbon-related materials, atomistic molecular dynamics, machine learning-based atomic potentials.				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	Computational chemistry and physical chemistry				
<b>Duties and Responsibilities</b>	The candidate is motivated to independently identify a research direction(s) (that are within the research areas of the center) that are pioneering, and then to follow the projects through to completion, including writing a high quality draft of manuscript and supplemental information document describing science done.				
<b>Knowledge Required</b>	The candidate should have a deep & broad knowledge in physical/computational chemistry, solid state physics, and/or materials science.				
<b>Competencies Required</b>	The candidate should have a strong background in computational chemistry and physical chemistry of materials. Expertise in performing first-principles calculations and molecular dynamics are needed together with capability of analyzing the results scientifically. Expertise in using or developing machine learning force field based on the kernal approach (AutoForce) is welcomed. The candidate should demonstrate that they have experience writing a scientific manuscript by explaining in their application <i>which papers they have written, and revised, that are listed in their publication list.</i>				
<b>Attitude Required</b>	The candidate should be passionate about basic science and have a deep desire to pioneer new science.				
<b>Basic skills Required</b>	The candidate should have strong written and verbal communication skills, be prepared to mentor one or perhaps two junior members of the research team, and be self-motivated to contribute their ideas and knowledge to other projects underway in the group. That is: to be both independent as well as helpful.				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: Chemistry, Material Science, Physics</li> <li>- Preference: Doctoral experience in study of carbon materials and machine learning. Those who have a track record of high impact publications are particularly encouraged to apply.</li> </ul>				
<b>Screening</b>	[Stage 1] Document Screening ▶ [Stage 2] Interview				

※This job description states major work duties of the hiring area. Work duties that are not stated here may need to be performed.

※This position will remain open until filled.

## Job Description [⑪ 서영덕 부연구단장 그룹, 박사후연구원, 1 명]

Workplace	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	Job Category (Level)	Postdoctoral Research Associate	Area of Hiring	Research (Nano Spectroscopy & Imaging of Materials)
Work Duties	Tackle outstanding challenges in nano spectroscopy & imaging of novel materials and investigate the chemical and materials pathways to understand mechanisms of growth.				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	Novel carbon material growth, including new allotropes of carbon, and/or spectroscopic new materials				
Duties and Responsibilities	The candidate is motivated to help to identify a research direction(s) (that are within the research areas of the center) that are pioneering, and then to follow the projects through to completion, including writing a high-quality draft of manuscript(s) and supplemental information document(s) describing the science done.				
Knowledge Required	The candidate should have a deep & broad capability in doing nano spectroscopy & imaging (with the ability and strong interest to “go in new directions”).				
Competencies Required	The candidate should have a strong background in nano spectroscopy & imaging that includes at least two among Nano Raman spectroscopy or its related nanomaterials synthesis, Nano Luminescence spectroscopy or its related nanomaterials synthesis, Scanning Probe Microscopy, Nano Fluorescence spectroscopy, IR or Mid-IR or Near-IR Spectroscopy. The candidate should be experienced with a wide variety of experimental methods used for nano spectroscopy & imaging and be interested & willing to learn new methods (if not already familiar with them) such as for characterizing bulk materials, and surfaces and interfaces, including SEM, EDS, EBSD, SPM, XPS/UPS/Auger electron spectroscopy, X-ray diffraction, and thermal analysis (TGA, DSC, perhaps others). The candidate should be very familiar and capable with standard methods used by molecular spectroscopist such as UV-Vis spectroscopies, Fluorescence, IR, and Raman.				
Attitude Required	The candidate should be passionate about basic science and have a deep desire to pioneer new science.				
Basic skills Required	The candidate should have strong written and verbal communication skills, be prepared to mentor one or perhaps two junior members of the research team and be self-motivated to contribute their ideas and knowledge to other projects underway in the group. That is: to be both independent as well as helpful.				
Qualification	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: Chemistry(Nano Spectroscopy) or Physics(Nano Optics) and related majors</li> <li>- Preference: Doctoral experience in nano spectroscopy &amp; imaging. Those who have a track record of having published in the ‘specialty literature’ in nano spectroscopy &amp; imaging in their particular branch of expertise, are particularly encouraged to apply.</li> </ul>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

※This job description states major work duties of the hiring area. Work duties that are not stated here may need to be performed.

※This position will remain open until filled.

## Job Description [⑫ 이종훈 그룹리더 그룹, 박사후연구원, 1명]

Workplace	Center for Multidimensional Carbon Materials	Job Category (Level)	Postdoctoral Research Associate	Area of Hiring	Research ( <i>in situ</i> TEM)
Work Duties	(1) In situ TEM, (2) analysis of novel materials with aberration-corrected TEM/STEM, (3) materials research on carbon nanomaterials and low dimensional materials (in the Characterization group led by Group Leader LEE Zonghoon)				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	In situ TEM for carbon nanomaterials and low dimensional materials				
Duties and Responsibilities	(1) Performing in situ TEM, (2) analysis of results for carbon and low dimensional materials, (3) design of novel in situ experiments, (4) characterization of novel materials with aberration-corrected TEM/STEM, (5) writing research papers				
Knowledge Required	(1) Fundamental material science and crystallography, (2) HR-TEM and -STEM: theory and operation, (3) in situ TEM, (4) Fundamental carbon nanomaterials and 2D materials, (5) Communication in English				
Competencies Required	(1) At least one first-authored paper in the field of in situ TEM, (2) hands-on experience in in situ TEM experiments, (3) hands-on experience in aberration-corrected TEM/STEM, (4) hands-on experience in EELS and EDS, (5) hands-on experience in FIB operation				
Attitude Required	(1) Well organized, (2) ability to plan and execute experiments, (3) good communication attitude				
Basic skills Required	(1) Hands-on operation of TEM/STEM, FIB, EELS and EDS, (2) Hands-on operation of XRD and Raman Spectroscopy, (3) hands-on experience in conventional TEM sample preparation, (4) hands-on experience in TEM sample preparation for 2D materials				
Qualification	<p>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</p> <p>- Major: Materials science, physics, chemistry, chemical engineering, mechanical engineering, or other related majors</p> <p>- Preference: Experience in in situ TEM/STEM; HR-TEM/STEM analysis of nanomaterials; aberration-correction; HR-TEM/STEM image simulation experience is preferred</p>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

※This job description states major work duties of the hiring area. Work duties that are not stated here may need to be performed.

※This position will remain open until filled.

## Job Description [⑬ 진미진 YSF 그룹, 연구원, 2 명]

Workplace	Center for Multidimensional Carbon Materials (Ulsan, UNIST)	Job Category (Level)	Research Staff (Researcher)	Area of Hiring	Research (Experimental Physics)
Work Duties	Research on electron/spin manipulation at novel functional carbon and related materials (YSF team)				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	<p>Novel carbon material growth, including new allotropes of carbon</p> <p>▶ YSF team: Electron/Spin manipulation at novel functional carbon and related materials</p>				
Duties and Responsibilities	Develop own research with publish papers and strong self-motivation				
Knowledge Required	(1) Condensed matter physics, (2) knowledge of magnetic materials properties and analysis methods, (3) experience of unit device fabrication process such as e-beam lithography, reactive ion etching, annealing, metal deposition, (4) experience of material thin film deposition with vacuum conditions				
Competencies Required	(1) Research paper and report writing skills, (2) communication and presentation skills, (3) problem solving ability, (4) fluency in English				
Attitude Required	(1) Communication through cooperation, adaptability to the organizational culture, (2) creative work attitude for research in various fields of the required area				
Basic skills Required	Communication, problem solving, interpersonal relationship, information processing, proficiency in English language, development potential, work ethics, etc.				
Qualification	<p>Degree: Bachelor's degree or above</p> <p>Major: Physics, materials science, electrical engineering and related majors</p> <p>Preference: low temperature electron transport study, and spintronic are preferred</p> <p>We seek candidates for Researcher 1) position with specialties in physics, materials science, electrical engineering or other related fields. The candidate needs to be fluent in both oral and written English, and will work on projects aimed at detailed study of novel carbon and related materials. Familiarity with the basic knowledge of device fabrication processing is valued. It is highly desirable that the candidate has working experience with □ thin film deposition using sputtering method (SnO, InO, and so on) □ plasma treatment using ICP RIE method with different gas □ thin film analysis such as XRD, XPS, etc, □ Electronic device fabrication including e-beam lithography, photo lithography, evaporation, lift off process etc</p>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

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※This position will remain open until filled.



## Job Description [⑭ Rodney S. Ruoff 연구단장 그룹, 연구기술직, 1명]

근무지	다차원 탄소재료 연구단 (울산, UNIST)	직종 (직급)	연구기술직	분야	연구 (진공 장비 관리 및 자체 제작 장비 구축 참여)
직무	연구단 내 기 설치된 진공 장비 관리 및 자체 제작 장비 구축 참여 연구 (설계 및 제작)				
기관 주요 사업	<p>○ 기초과학연구원 「국제과학비즈니스벨트 조성 및 지원에 관한 특별법」에 따라 세계적 수준의 기초과학연구원 및 기초과학 기반 순수 기초연구를 수행함으로써 창조적 지식 및 원천기술 확보와 우수 연구인력 양성에 기여하는 연구기관 임</p> <ul style="list-style-type: none"> <li>- 기초과학연구</li> <li>- 과학기술분야의 학제 간 융합에 관한 기초연구</li> <li>- 기초과학과 인문학·사회과학 및 문화예술 간의 융합에 관한 연구</li> <li>- 기초과학연구 방향설정을 위한 정책연구</li> <li>- 기초연구시설 및 장비의 구축·활용에 관한 사업</li> <li>- 연구 성과의 관리·이전·활용 및 사업화</li> </ul>				
연구단 연구분야	새로운 방법을 이용한 저차원 탄소 동소체 합성 및 분석				
직무수행 내용 및 태도	<ul style="list-style-type: none"> <li>- 연구단의 자체 제작 장비와 연구단이 기 보유중인 진공 장비의 유지 보수 및 관리</li> <li>- 새로운 자체 제작 장비 설계 및 제작 참여</li> <li>- 의사소통에 적극적인 자, 적극적인 태도, 문제 해결에 대한 의지, 원활하고 친밀한 대화 자세로 여러 사람들과 협업이 가능한 자</li> </ul>				
필요 지식	물리, 재료, 기계 등 관련 유관분야 전공자 (이공계 학사 학위 이상)				
필요 기술	<p>○ 연구 기술직은 학사급 이상 소지자로 다음과 같은 역량을 요구함.</p> <ul style="list-style-type: none"> <li>- 진공 장비에 대한 지식이 있는 자</li> <li>- 장비 설계의 유 경험자</li> <li>- 진공 증착 장비 유 경험자</li> <li>- 진공 장비 부품에 대한 활용 경험이 있는 자</li> </ul>				
직업 기초 능력	의사소통능력, 수리능력, 문제해결능력, 대인관계능력, 정보능력, 조직이해능력, 직업윤리				
필요 자격	<ul style="list-style-type: none"> <li>- 지원자격 : 물리, 재료, 기계 등 이공계 학사 학위 이상 (석사 및 박사학위 소지자 지원 가능)</li> <li>- 우대사항 : 관련 분야 업무 경험자</li> </ul>				
전형방법	서류전형 ▶ 면접전형				

※ 본 직무기술서는 채용분야의 대표 직무에 대한 기술이며, 상기 이외의 업무도 수행할 수 있음.

## Job Description [⑮ Bartosz A. Grzybowski 연구단장 그룹, 박사후연구원, 2 명]

<b>Workplace</b>	Center for Algorithmic and Robotized Synthesis (Ulsan, UNIST)	<b>Job Category (Level)</b>	Postdoctoral Research Associate	<b>Area of Hiring</b>	Research (Algorithmic and Robotized Synthesis)
<b>Work Duties</b>	Research on Algorithmic and Robotized Synthesis				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Polity research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	Computer-assisted synthesis planning and robotics to enable fundamental discovery in chemistry and biochemistry				
<b>Duties and Responsibilities</b>	<ul style="list-style-type: none"> <li>- AI Synthesis or Organic Chemistry</li> <li>- Multistep synthesis and synthesis design thorough knowledge of reaction mechanism</li> <li>- Automation, Fluidics/microfluidics, Physical analysis of mechanical/robotic/fluidic systems</li> </ul>				
<b>Knowledge Required</b>	Interdisciplinary Research on Computerized synthesis and Artificial intelligence AI applied to organic chemistry, Complex chemical networks and catalytic systems, Self-assembly in non-equilibrium regimes, Nanomaterials for catalysis and nanomedicine.				
<b>Competencies Required</b>	Knowledge in related fields (Doctoral degree)				
<b>Attitude Required</b>	The candidate should be passionate about basic science and have a deep desire to pioneer new science.				
<b>Basic skills Required</b>	The candidate should have communication skills, problem-solving ability, interpersonal skills, technical competence, and professional ethics. The candidate should have a demonstrated history of thinking for themselves, having strong self-initiative, an excellent work ethic, working well at times individually and at times with others, and speak and write English well.				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: AI Synthesis or Organic Chemistry or Major related to the field of recruitment</li> </ul>				
<b>Screening</b>	[Stage 1] Document Screening ▶ [Stage 2] Interview				

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※This position will remain open until filled.

## Job Description [(16) 명경제 연구단장 그룹, 박사후연구원, 1 명]

Workplace	Center for Genomic Integrity (Ulsan, UNIST)	Job Category (Level)	Postdoctoral Research Associate	Area of Hiring	Research (Genomic Integrity)
Work Duties	<ul style="list-style-type: none"> <li>- Molecular Biology</li> <li>- Cell Biology</li> <li>- DNA Repair and Genome Stability</li> <li>- Cancer Biology</li> <li>- CRISPR Cas9</li> </ul>				
Main business of IBS	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Policy research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
Research Area	Research on Genomic Integrity				
Duties and Responsibilities	We seek candidates for a senior researcher position to investigate these multiple DNA repair pathways at the molecular level using small molecules with molecular, cell biological and biochemical techniques and animal models.				
Knowledge Required	<ul style="list-style-type: none"> <li>- Molecular Biology</li> <li>- Cell Biology</li> <li>- DNA Repair and Genome Stability</li> <li>- Cancer Biology</li> <li>- CRISPR Cas9.</li> </ul>				
Competencies Required	Knowledge in related fields (Doctoral degree)				
Attitude Required	The candidate should have a demonstrated history of thinking for themselves, strong self-initiative, an excellent work ethic, working well individually and at times with others, and speaking and writing English well.				
Basic skills Required	The candidate should have communication skills, problem-solving ability, interpersonal skills, technical competence, and professional ethics.				
Qualification	<ul style="list-style-type: none"> <li>- Degree: Doctoral degree (Eligible to apply: those who do not exceed 5 years after obtaining doctoral degree or those who are expected to obtain a doctoral degree within 3 months by the time of expected appointment date)</li> <li>- Major: A related field</li> </ul>				
Screening	[Stage 1] Document Screening ▶ [Stage 2] Interview				

※ This job description states major work duties of the hiring area. Work duties that are not stated here may need to be performed.

※ This position will remain open until filled.

## Job Description [⑰ 명경제 연구단장 그룹, 연구원, 1 명]

<b>Workplace</b>	Center for Genomic Integrity (Ulsan, UNIST)	<b>Job Category (Level)</b>	Research Staff (Researcher)	<b>Area of Hiring</b>	Research (Mechanisms of DNA replication)
<b>Work Duties</b>	Research on the function of acetyltransferases in DNA replication and repair				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Policy research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	DNA replication and repair				
<b>Duties and Responsibilities</b>	Perform research on the project investigating the back-up pathways of PCNA unloading from the DNA, including identification of protein post-translational modifications, generation of mutant cell lines, fluorescence microscopy, expression and purification of recombinant proteins, in vitro functional assays with recombinant proteins, etc.				
<b>Knowledge Required</b>	Theoretical and practical knowledge of Cell and Molecular Biology with the emphasis on the DNA repair and cell cycle regulation				
<b>Competencies Required</b>	Research report writing and presentation skills, fluency in English				
<b>Attitude Required</b>	Ability to communicate effectively within the international research group (in English), creative thinking and problem solving, striving for knowledge and scientific curiosity				
<b>Basic skills Required</b>	Communication, problem solving, interpersonal relationship, proficiency in English language, work ethics				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree: Master's degree</li> <li>- Major: Biology</li> <li>- Preference: Practical knowledge of protein purification, preparation of protein samples for mass-spectrometry, basic cell biology, especially gene editing in human cells, microscopy analysis of human chromosomes, DNA cloning, chromatin immunoprecipitation</li> </ul>				
<b>Screening</b>	[Stage 1] Document Screening ▶ [Stage 2] Interview				

※ This job description states major work duties of the hiring area. Work duties that are not stated here may need to be performed.

※ This position will remain open until filled.

## Job Description [(18) 명경제 연구단장 그룹, 연구기술직, 1 명]

<b>Workplace</b>	Center for Genomic Integrity (Ulsan, UNIST)	<b>Job Category (Level)</b>	Research Engineering Staff	<b>Area of Hiring</b>	Research (Mechanisms of Mutagenesis)
<b>Work Duties</b>	Research on overcoming cancer cell resistance to chemotherapy				
<b>Main business of IBS</b>	<p>Founded under the Special Act on Establishment of and Support for International Science and Business Belt, the Institute for Basic Science conducts fundamental research in the fields of basic science, contributing to developing and delivering scientific knowledge and innovative technology, as well as nurturing the next generation of scientists.</p> <ul style="list-style-type: none"> <li>• Basic science research</li> <li>• Interdisciplinary basic science research in science and technology</li> <li>• Convergence between basic science and humanities, social science and culture and arts</li> <li>• Policy research for setting the direction of basic science research</li> <li>• Programs for establishing and utilizing research facilities and equipment management, transfer, utilization and commercialization of research outcomes</li> </ul>				
<b>Research Area</b>	Uncovering the origins of mutational signatures, the mechanisms of mutagenesis, the role of DNA repair pathways in cancer cell drug resistance				
<b>Duties and Responsibilities</b>	<p><b><u>Research Assistance on evaluation of DNA damage and mutational load</u></b></p> <ul style="list-style-type: none"> <li>- Perform experiments in Cell and Molecular Biology (clonogenic survival assays, generation of the gene knock-out and gene-edited cell lines, assessment of DNA damage (comet and chromatin fiber assays), Western blot evaluation of protein expression, pcr analysis, recombinant protein expression and purification, etc.)</li> <li>- Assist students in learning the basic laboratory methods</li> <li>- Assist with the lab equipment maintenance</li> <li>- Assist with the lab management, ordering of disposables and reagents, implementing lab safety regulations</li> </ul>				
<b>Knowledge Required</b>	Practical knowledge of Cell and Molecular Biology methods related to mammalian cell culture, protein biochemistry, gene cloning, DNA analysis.				
<b>Competencies Required</b>	Knowledge in related fields (Master's degree)				
<b>Attitude Required</b>	The candidate should be passionate about basic science				
<b>Basic skills Required</b>	The candidate should have communication skills, problem-solving ability, interpersonal skills, technical competence, and professional ethics. The candidate should have demonstrated history of working well both individually and with others, and speak and write English and Korean well.				
<b>Qualification</b>	<ul style="list-style-type: none"> <li>- Degree : Master's degree</li> <li>- Major : Biology</li> <li>- Preference : Previous experience in molecular biology or biochemistry.</li> </ul>				
<b>Screening</b>	[Stage 1] Document Screening ▶ [Stage 2] Interview				

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※ This position will remain open until filled.