

Required Qualification in Detail

for 2020-06 Recruitment Announcement

of IBS Center for Multidimensional Carbon Materials

□ Recruitment Details

Work Position	Area No.	Area	Required Qualification
Postdoctoral Research Associate	①	Organic/ synthetic chemistry	-Degree: Doctoral Degree -Major: Organic/Synthetic Chemistry -Preference: Loves basic science and synthesizing new materials, solving reaction pathways, understanding atomic scale structure and chemical/physical properties of products. Ph.D.-level researcher who majored in organic chemistry (and/or organometallic, and/or synthetic chemistry); synthesis and modification of organic molecules, and macromolecules. Researchers with experience in synthesis of two-dimensional polymers, carbon materials, MOFs or COFs in solution or on a substrate. Expertise in all (or many) of: XRD, NMR, SEM, perhaps TEM, AFM, and various spectroscopies such as Raman, FTIR, UV-vis-NIR, XPS; gas adsorption (BET, porous materials analysis), TGA (TGA-MS, etc). Willingness to explore new types of materials perhaps not a part of the applicant's prior experience, but that are within the abilities of the applicant. Highly collaborative. Able to communicate in English.
	②	Electrochemical Synthesis, Materials/ Synthetic Chemistry	-Degree: Doctoral Degree -Major: Electrochemistry/Materials Chemistry -Preference: Passionate about basic science and synthesizing new materials, solving reaction pathways such as through electrochemical syntheses, understanding atomic scale structure and overall structure of new materials, and chemical/physical properties of the material products. Ph.D.-level researcher who majored in electrochemical synthesis, with strengths in materials synthesis. Researchers with deep experience in electrochemistry and synthesis of materials by using electrochemical methods and also through deep knowledge of redox reactions. Expertise in all or many of: electrochemistry and electrochemical methods, XRD, NMR, SEM, perhaps TEM, AFM, and various spectroscopies such as XPS, Raman, FTIR, UV-NIR, etc. Interest and desire to explore new types of materials that are perhaps not a part of applicant's prior experience but within the applicant's abilities. Highly collaborative. Able to communicate in English.
	③	Physics, Materials Science, Chemistry	-Degree: Doctoral Degree -Major: Physics, Materials Science, Chemistry, Scanning Probe Microscopy (with a particular focus on AFM) and related methods -Preference: Passionate about basic science and studying new materials, and exploiting opportunities at CMCM. Has significant experience in use of AFM and perhaps also other SPM methods to study chemical and physical properties of materials: Researchers with deep experience in the physical and physical chemical methods of AFM and SPM. Perhaps also having expertise in other methods of characterizing materials (microscopies, spectroscopies, thermal methods, and so on—candidates should explicitly state on CV or application). Has a strong desire to explore new types of materials and methods that are perhaps not a part of applicant's prior experience but within the applicant's abilities. Highly collaborative. Able to communicate in English.

Researcher	④	<p>-All areas that pertain to chemistry or chemical engineering (organic, inorganic, physical analytical, etc)</p>	<p>-Degree: Master's Degree -Major: Chemistry or Chemical Engineering -Preference: Experience with (1) basic chemical operations and techniques (e.g., chromatography, distillations, crystallizations), (2) basic characterization equipment (e.g., NMR, IR, UV-vis, etc.), and (3) working in a research group or as part of a research team</p> <p>We seek a candidate to help tackle exciting challenges at the intersection of carbon and polymer chemistry. The candidate should have a (1) background in chemistry or chemical engineering, (2) experience with basic techniques used in chemistry laboratories, and (3) knowledge of the equipment that is used to characterize chemical compounds. Ideal candidates will also (1) be fluent in English, (2) have some experience working on chemistry-related projects, (3) exhibit strong problem-solving skills, (4) display a high degree of technical proficiency, and (5) enjoy working as part of a team.</p>
Senior Researcher	⑤	<p>- Aberration-corrected TEM for Advanced Materials - in situ TEM</p>	<p>-Degree: Doctoral Degree -Major: Materials Science and Engineering, Physics, Chemistry, Chemical Engineering, and related field -Preference: Experience in aberration-corrected TEM for 2D materials, nanomaterials, and carbon materials; experience in in situ TEM; experience in HRTEM, HRSTEM, EELS, EDS, DF imaging, diffraction, and simulation is highly desired</p> <p>We seek candidates for non-tenure track positions (Senior Researchers or Postdoctoral Research Associates) that tackle outstanding challenges at the aberration-corrected transmission electron microscopy for two-dimensional materials, carbon nanomaterials, and nanomaterials. The positions will entail the advanced characterization, and manipulation of novel 2D materials and related carbon materials by using advanced TEM and in situ TEM. As such, the candidate should have deep experience with: (1) a broad range of aberration-corrected TEM and STEM, (2) HRTEM and HRSTEM imaging; (3) EELS and EDS, (4) TEM and STEM image simulation, and (5) relevant 2D materials synthesis, manipulation, and transfer, (6) in situ TEM (gas, liquid, thermal, mechanical, electrical etc.) work experience, and (7) Raman spectroscopy, PL, AFM, and device fabrication experience. Ideal candidates will (1) be fluent in English, (2) have multiple years of experience working, (3) have experience working in publication, (4) exhibit a strong motivation to work on projects rooted in the characterization and manipulation of new 2D materials and novel carbon materials with TEM, and (5) be expected to mentor junior team members.</p>
Postdoctoral Research Associate	⑥		<p>-Degree: Doctoral Degree (Those who do not exceed 5 years after obtaining doctoral degree, or those who are expected to obtain a doctoral degree within 3 months) - Major: Materials Science and Engineering, Physics, Chemistry, Chemical Engineering, and related field - Preference: Experience in aberration-corrected TEM for 2D materials, nanomaterials, and carbon materials; experience in in situ TEM; experience in HRTEM, HRSTEM, EELS, EDS, DF imaging, diffraction, and simulation is highly desired</p> <p>We seek candidates for non-tenure track positions (Senior Researchers or Postdoctoral Research Associates) that tackle outstanding challenges at the aberration-corrected transmission electron microscopy for two-dimensional materials, carbon nanomaterials, and nanomaterials. The positions will entail the advanced characterization, and manipulation of novel 2D materials and related carbon materials by using advanced TEM and in situ TEM. As such, the candidate should have deep experience with: (1) a broad range of aberration-corrected TEM and STEM, (2) HRTEM and HRSTEM imaging; (3) EELS and EDS, (4) TEM and STEM image simulation, and (5) relevant 2D materials synthesis, manipulation, and transfer, (6) in situ TEM (gas, liquid, thermal, mechanical, electrical etc.) work experience, and (7) Raman spectroscopy, PL, AFM, and device fabrication experience. Ideal candidates will (1) be fluent in English, (2) have multiple years of experience working,</p>

			(3) have experience working in publication, (4) exhibit a strong motivation to work on projects rooted in the characterization and manipulation of new 2D materials and novel carbon materials with TEM, and (5) be expected to mentor junior team members.
Researcher	⑦	- Aberration-corrected TEM for Advanced Materials	<p>-Degree: Master's Degree</p> <p>-Major: Materials Science and Engineering, Physics, Chemistry, Chemical Engineering, and related field</p> <p>-Preference: Experience in TEM operation, TEM analysis, TEM specimen preparation for nanomaterials is desired</p> <p>We seek candidates for non-tenure track position (Researcher) that operate TEM, prepare TEM specimens, and characterize 2D materials, carbon nanomaterials, and other nanomaterials with aberration-corrected TEM and analytical TEM. As such, the candidate should have experiences with: (1) TEM and/or STEM operation, (2) EELS and EDS, (3) TEM specimen preparation. Ideal candidates will (1) be able to communicate in English, (2) have multiple years of experience working, (3) exhibit a strong motivation to learn and work on characterization of nanomaterials with TEM, and (4) be expected to work with team members.</p>