# Job Description (Research Fellow)

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| **Workplace** | IBS Center for Quantum Conversion Research (GIST, Gwangju) | **Job category (level)** | Research Fellow | **Area of hiring** | Condensed matter physics, nano-optics or surface science related fields |
| **Work duties** | Theoretical research on nanospectroscopy-related fields based on condensed matter physics, nano-optics or surface science | | | | |
| **Main business of IBS** | Institute for Basic Science (IBS) is a national research institute established in accordance with Article 14 of the Special Act on Establishment of and Support for International Science and Business Belts. IBS aims to discover creative knowledge and secure original technologies through world-class basic science research. | | | | |
| **Research area of the Center** | The Center for Quantum Conversion Research is dedicated to developing innovative methodologies for quantitatively measuring and controlling the conversion phenomena between quantum states of matter that underlie energy and chemical conversion. | | | | |
| **Duties and responsibilities** | The position requires the research focused on theoretical investigation of light-matter interaction and electron transport at single-molecule level. And the position also requires the research focused on developing theoretical methodologies for analyzing various quantum many-body dynamics that have already been observed or are considered observable through experiments using scanning probe microscopy. | | | | |
| **Knowledge required** | Expertise in a field related to condensed matter physics, nano-optics or surface science with the ability to interpret phenomena from a nanoscale perspective is required. A successful candidate will also have knowledge on non-equilibrium Green function formalism, first-principle calculation, or other theoretical methodologies. | | | | |
| **Competencies required** | Research paper and report writing skills, Communication and presentation skills, Problem solving ability, Fluency in English | | | | |
| **Attitude required** | Communication through cooperation. A creative work attitude that stays with the basics and uses imagination with an open mind to related disciplines. Not only theoretically explaining experimental results but also actively proposing experiments through theoretical predictions tailored for STM-based experiments. | | | | |
| **Basic skills required** | Communication, Mathematics, Problem solving, Interpersonal relationship, Information processing, Understanding of the organization, Work ethics | | | | |
| **Qualification** | ▪ Degree: Earned a doctoral degree or a master's degree with at least five years' research experience as of the appointment date<br>▪ Major: Related to condensed matter physics, nano-optics or surface science<br>▪ Preferences:<br>1) 5 years or more research experience in the recruitment area after PhD degree.<br>2) Having experience in research/development/analysis of single atom/molecule level optics or transport using theoretical methods<br>3) Having experience of collaboration with experiments using STM | | | | |
| **Screening** | Stage 1: Document screening → Stage 2: Interview<br>In accordance with the blind hiring policy for researchers, the applicant's information including academic background, schools, period spent on obtaining degrees, reference letters and experience is provided to the screening panel. However, personal information that can identify the applicant (e.g., gender and age) is not provided. | | | | |

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