Postdoctoral Researcher (Full-time)
(Recruitment No. 14, Nano Life Science Institute, Kanazawa University)

[Institution] Kanazawa University

[URL] https://nanolsi.kanazawa-u.ac.jp/en/

[Department] Nano Life Science Institute (WPI-NanoLSI)

[Institution Type] National University

[Position Description]

The Nano Life Science Institute (NanoLSI) at Kanazawa University was established in 2017 as a world-leading research center under the World Premier International Research Center Initiative (WPI) of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The institute is engaged in the development of state-of-the-art bio-scanning probe microscopy (bio-SPM) technologies, such as atomic force microscopy (AFM) and scanning ion conductance microscopy (SICM), as well as in nano-life science research utilizing these advanced techniques.

To achieve these objectives, the institute promotes interdisciplinary research that integrates four key fields: nanometrology centered on bio-SPM, life sciences, supramolecular chemistry, and computational science. Within this framework, researchers in supramolecular chemistry are engaged in the development of molecular sensors, the creation of nanoprobe sensors by incorporating these sensors into the tips of AFM and SICM probes, and the development of surface modification techniques for substrates used in AFM and SICM measurements. Meanwhile, researchers in computational science utilize advanced data science techniques—including simulations, machine learning, and statistical analysis—to verify the principles of SPM measurement methods, analyze SPM measurement data, and conduct mathematical modeling and simulations to understand biological phenomena in comparison with experimental results obtained by SPM.

Since its establishment in 2017, the institute has, over a period of ten years, focused on the development of nanoendoscopic SPM technology capable of directly observing, analyzing, and manipulating intracellular nanodynamics in living cells, as well as on research into fundamental cellular functions and cancer-specific abnormalities using advanced SPM techniques. Over the subsequent five years from 2027 onward, the institute aims to further advance these research efforts while also developing local sampling SPM technologies. These technologies involve extracting portions of cells or tissues using nanopipettes and analyzing them with a variety of single-molecule and single-cell analytical techniques, including SPM. In addition, the institute seeks to expand the application of SPM technologies to a wide range of diseases beyond cancer.

We are seeking postdoctoral researchers who will play central roles in promoting research activities in Nanometrology field.

[Field of Recruitment]
Shibata Laboratory has been conducting research on the biological applications of high-speed atomic force microscopy (high-speed AFM) and has published the following representative papers.
HP: https://bioafminfi.w3.kanazawa-u.ac.jp/

Representative publications
1. M. Shibata and H. Nishimasu et al., “Real-space and real-time dynamics of CRISPR-Cas9 visualized by high-speed atomic force microscopy.” Nat. Commun. 8, 1430 (2017).
2. L. Puppulin et al., “Dynamics of target DNA binding and cleavage by Staphylococcus aureus Cas9 as revealed by high-speed atomic force microscopy.” ACS Nano, 17, 4629-4641 (2023).
3. S. Tsujioka et al., “Imaging single CaMKII holoenzymes at work by high-speed atomic force microscopy.” Sci. Adv. 9, eadh1069 (2023).
4. S. Morioka et al., “High-speed atomic force microscopy reveals the nucleosome sliding and DNA unwrapping/wrapping dynamics of tail-less nucleosomes.” Nano Lett., 24, 5246–5254 (2024).
5. A. Sumino et al., “High-speed atomic force microscopy reveals fluctuations and dimer splitting of the N-terminal domain of GluA2 ionotropic glutamate receptor-auxiliary subunit complex.” ACS Nano 18, 25018-25035 (2024).
6. K. Matsushima et al., “Structural dynamics of mixed-subunit CaMKIIα/β heterododecamers filmed by high-speed AFM.” Nat. Commun., 16, 10603 (2025).

As an Assistant Professor in this laboratory, the successful candidate will join the group and engage in interdisciplinary research at the interface of nanometrology and life science using high-speed AFM. Prior experience with AFM techniques is not required; instead, candidates with a research background in life science are sought.

[Research Field]
Area: Biological Sciences
Discipline: Biophysics-related fields

[Work Location]
Nano Life Science Institute, Kanazawa University,
Kakuma-machi, Kanazawa, Ishikawa 920-1192, Japan

[Number of Positions]

1 position. (One individual will be recruited, either as a postdoctoral researcher under this call or as a specially appointed assistant professor under a separate recruitment.)

[Starting Date] April 1, 2027, or as soon as possible thereafter (negotiable)

[Position] Postdoctoral Researcher (Fixed-term)

[Main Duties]

• Research activities

- Single-molecule imaging of proteins and nucleic acids using high-speed AFM. While this laboratory mainly focuses on observing proteins and nucleic acid–binding proteins involved in memory and learning processes in the brain, research is not limited to these targets. Imaging of cells using high-speed AFM and independent research topics are also highly encouraged.
- Development of application technologies required for high-speed AFM observations, such as the development of novel AFM substrates capable of visualizing enzymatic reactions.
- Expression and purification of recombinant proteins.
- Collaborative research with life science researchers within the institute.

• Dissemination of research results to society and outreach activities

[Job Type] Postdoctoral Researcher

[Employment Status] Full-time (non-tenured)

[Qualifications]

Applicants must satisfy all of the following qualifications.

1) Demonstrated high research capabilities and the ability to conduct research in English
2) Possess adequate communication skills, knowledge of research presentations, and the ability to write research papers
3) Ability to conduct research as a member of the research group
4) A doctoral degree (including a PhD from an overseas university) must have been awarded or is expected to be awarded by the time of appointment
5) Experience in international collaborative research is desirable
6) A record of presentations and publications in at least one of the following research fields: biophysics, biochemistry, molecular biology, cell biology, structural biology, neuroscience, or applied physics.
7) The ability to conduct independent research activities, as well as to collaborate effectively within a team.

Terms and Conditions　[Details of salary, Working Hours, Holidays, Period of Employment and Insurance, etc.]

[Job Title]

Postdoctoral Researcher (Full-time, fixed-term employee)

[Period of Employment]

From April 1, 2027 (or as soon as possible thereafter) to March 31, 2028

*Possibility of renewal after the end of the employment period.
*The total employment period is a maximum of three years.
*The start date of employment is negotiable.

[Working Hours]

8:30 AM – 5:00 PM (45-minute break), 38 hours and 45 minutes per week
Holidays: Saturdays, Sundays, national holidays, and New Year's holidays (December 29 – January 3)

[Salary]

*Approximately 4.2 to 4.5 million yen per year
*Salary will be determined in accordance with the National University Corporation Kanazawa University Part-time Employee Employment Regulations and the Part-time Employee Salary Regulations and will vary depending on the individual's experience and abilities.
*Leave and various allowances will be provided in accordance with the relevant regulations.
*Social insurance: Health insurance and employee pension
*Employment insurance: Covered

For working conditions other than those listed above, please refer to the National University Corporation Kanazawa University Part-time Employee Employment Regulations (see the URL below).
URL: https://www.kanazawa-u.ac.jp/university/administration/regulation/rules

[Application Period]

Application deadline: December 15, 2026

Applications will be reviewed on a rolling basis. If a suitable candidate is identified, the position may be closed after one month from the start of the application period.

[Application, Selection, Notification of Result, Contact Details]

[Application Documents]

1) Curriculum vitae including a recent photograph, present address, phone number, email

address, academic background, research experience, professional experience, and other relevant information, as well as ORCID iD and ResearcherID

2) List of research activities, organized under the following categories: dissertation/thesis, peer-reviewed journal papers, conference presentations, review articles, books, patents, etc. For each item, provide all co-author names, publisher or journal/conference name, volume(issue), page range, year of publication, and DOI (if available).

3) PDF copies of up to five major publications

4) List of external research funding (including Grants-in-Aid for Scientific Research (KAKENHI), commissioned research, joint research, donations, etc., and their amounts)

5) Summary of past research and teaching activities (approximately one A4 page)

6) Statement of the applicant's research interests, achievements, and future plans (approximately one A4 page)

7) Names, affiliations, and contact details of two referees

*All documents must be prepared in English. However, if it is not appropriate to provide certain items (such as a curriculum vitae or information on external funding) in English, those items may be written in Japanese.

- Please submit the application documents by email.
  Email: nanolsi-jobs@adm.kanazawa-u.ac.jp
- If the file size exceeds 5 MB, please use a file transfer service.
- Please include "Application Documents for Postdoctoral Researcher (Recruitment No. 14)" in the subject line.

[Selection Process and Notification of Results]

Document screening and interview

*Travel expenses for the interview will not be covered.

[Contact Information]

For details regarding job duties, please contact the following address:

Kanazawa University Nano Life Science Institute
Professor　Mikihiro Shibata
Tel:076-264-5927
Email: msshibata@staff.kanazawa-u.ac.jp

For inquiries regarding employment regulations or administrative procedures, please contact the following address:

Nano Life Science Institute, Kanazawa University
Tel: +81-76-234-4550
Email: nanolsi-jobs@adm.kanazawa-u.ac.jp

[Additional Information]

1) The website below provides information about employment regulations.
https://nanolsi.kanazawa-u.ac.jp/en/staff/rules/

2) Kanazawa University actively promotes gender equality in the workplace. For details, see the following URL: https://cdl.w3.kanazawa-u.ac.jp/en/

3) At NanoLSI, many female researchers are actively engaged in research activities. For details, see the following URL: https://nanolsi.kanazawa-u.ac.jp/en/research/diversity/