

September 12, 2024

### Recruitment for Professor Position

Institute of Fluid Science (IFS), Tohoku University invites applications for a tenured full Professor position. Preference will be given to highly motivated candidates with an outstanding academic background.

Kaoru Maruta  
Director  
IFS, Tohoku University

#### 1. Division, Laboratory, Number of Positions and Job Title

Division	Laboratory	Number of Positions and Job Title
Nanoscale Flow Research Division	Molecular Composite Flow Laboratory	One position, tenured full Professor

#### 2. Job Description

Research and education based on molecular dynamics approaches for elucidation of nano-scale heat and mass transport phenomena as well as thermal and fluid phenomena occurred by the interaction of multiple scales of physics, and their applications.

#### 3. Required Qualifications and Conditions

Candidates must have a doctoral degree and a distinguished achievement in the above-mentioned field of specialization. (See the notation of DEI attached)

#### 4. Starting Date of employment

April 1, 2025

(Permanent employment [Retirement age depends on the rules and regulations of Tohoku University.] )

#### 5. Application Deadline

Application documents must arrive by noon, Friday, November 22, 2024 (JST).

## 6. Requested Documents

### I. Curriculum Vitae

Postal address and email address should be included.

### II. List of research accomplishments\*

- 1: Peer-reviewed journal papers (Specify the latest impact factor of the journals.)
- 2: Review papers (Specify the latest impact factor of the journals.)
- 3: Peer-reviewed full-length proceedings papers
- 4: Books, chapters
- 5: Invited lectures (only lectures presented by the applicant)
- 6: Presentations at international conferences other than Item 5
- 7: Experience in organizing conferences
- 8: Patent applications/registrations
- 9: Background and achievements in international research collaboration
- 10: Awards and honors
- 11: Research fundings
- 12: Others if applicable

\* Lists should include twelve items shown above. All the coauthors for Items 1 through 6 and 8 in II should be specified. Underline the applicant for Items 1 through 6, and 8. In addition, the roles of the applicant for Items 1 through 8 in II should be described. Total number of citations and h-index should be indicated with the source of them. Summarize Items 1 through 12 in a single PDF file.

### III. Electronic files in PDF format of five selected papers.

### IV. Summaries of the five selected papers around 300 words each.

### V. Future research and education plan at IFS. Include educational experiences in subjects related to mechanical engineering.

### VI. Contact information of reference(s) up to three persons: name, affiliation, title, postal address, phone number and email address.

Documents should be prepared in A4 format. Put all the files into USB flash drive or equivalent and send it by registered mail if postal service is used.

Submission by file transfer service or email attachment is also acceptable. Indicate “Application for Professor Position of Molecular Composite Flow Laboratory, Nanoscale Flow Research Division” in the subject of email. An acknowledgment of receipt will be sent to the applicant. If the applicant does not receive it within 48 hours from submission, contact again.

The applicant may be requested to provide additional documents during the screening process. An online interview may be conducted.

## 7. Contact

Director Kaoru Maruta

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For more information on the Institute of Fluid Science, visit:

<https://www.ifs.tohoku.ac.jp/>

## Expected research areas and additional information

The Nanoscale Flow Research Division aims to develop fundamental science related to nano- and micro-scale phenomena and the physical properties of thermofluids, and create new research fields. By elucidating electron- and molecular-scale mass, momentum, and energy transport mechanisms and discovering nanoscale flow characteristics in living organisms and devices, the division promotes the deepening and development of science and the creation of innovative nano-thermofluid devices and medical technologies.

Also, as cooperative courses of the Division of Mechanical Engineering of the Graduate School at Tohoku University and Department of Mechanical and Aerospace Engineering of the School of Engineering at Tohoku University, faculty members are in charge of lectures related to mechanical engineering.

Through this recruitment, we are planning to promote the following research.

Division	Research Contents
Nanoscale Flow Research Division (Molecular Composite Flow Laboratory) *	<p>Research based on molecular dynamics approaches for elucidation of nano-scale heat and mass transport phenomena as well as thermal and fluid phenomena occurred by the interaction of multiple scales of physics, and their applications</p> <ol style="list-style-type: none"><li>1. Research on molecular-level mechanisms that determine the properties of macro-scale thermal fluids</li><li>2. Research on nano-scale transport properties at interfaces modified by organic molecules</li><li>3. Research on the heat and mass transport properties and design of organic and polymer materials by molecular simulations and data-driven science</li></ol>

\* The Nanoscale Flow Research Division consists of seven laboratories: Non-Equilibrium Molecular Gas Flow Laboratory, Molecular Heat Transfer Laboratory, Quantum Nanoscale Flow Systems Laboratory, Biological Nanoscale Reactive Flow Laboratory, Molecular Composite Flow Laboratory, Biomolecular Flow Systems Laboratory and Nanoscale Flow Application Laboratory.

## Notice

This recruitment is an English translation of the Japanese version. The content of the recruitment is based on the Japanese version.

## Diversity, Equity and Inclusion (DEI)

- Tohoku University promotes activities to increase Diversity, Equity and Inclusion (DEI) and encourages people of varied talents from all backgrounds to apply for positions at the university.  
Tohoku University's website about the DEI Declaration is here:  
<https://dei.tohoku.ac.jp/vision/about/>
- Pursuant to Article 8 of the Act on Securing, Etc. of Equal Opportunity and Treatment between Men and Women in Employment, Tohoku University shall, as a measure for increasing the presence of women among the academic staff, prioritize the hiring of women deemed qualified for each job opening, based on impartial evaluation.
- Tohoku University has published 'Tohoku University-Live as Who You Are-Guidelines for Gender and Sexual Diversity' to provide explanations and details of how those at the university should respond with respect to diverse sexuality. The purpose of the guidelines is to create an environment in which all students, faculty, and staff respect diverse sexuality in their academic, research, and professional activities.  
Please see the Tohoku University Center for Gender Equality Promotion website:  
[https://dei.tohoku.ac.jp/wp-content/uploads/2023/10/EN\\_GuideLine.pdf](https://dei.tohoku.ac.jp/wp-content/uploads/2023/10/EN_GuideLine.pdf)
- Tohoku University has the largest on-campus childcare system of all Japanese national universities. This network comprises three nurseries: Kawauchi Keyaki Nursery school (capacity: 22) and Aobayama Midori Nursery school (116), both open to all university employees, as well as Hoshinoko Nursery school (120), which is open to employees working at Tohoku University Hospital. In addition, Tohoku University Hospital runs a childcare room for mildly ill and convalescent children which is available to all university employees
- See the following website for information on these and other programs that Tohoku University runs to assist work-life balance, to support researchers, and to advance gender equality, including measures to promote childcare leave among male employees.

Center for Diversity, Equity, and Inclusion, Tohoku University Website:  
[https://dei.tohoku.ac.jp/vision/consulting/for\\_family/](https://dei.tohoku.ac.jp/vision/consulting/for_family/)

Human Resources and Planning Department website:  
<https://c.bureau.tohoku.ac.jp/jinji-top/external/a-4-kosodate/>