

JOB VACANCY ANNOUNCEMENT

The National Astronomical Observatory of Japan (NAOJ) announces an Associate Professor position for Development of Microwave Photonics and Digital Electronics.

1. Job Title: Associate Professor, one position
2. Division and Location: The Advanced Technology Center (ATC), NAOJ, Mitaka (Japan)
3. Area of Expertise: Applied Physics, Electrical/Electronic Engineering, and/or Radio Astronomy

4. Job Description:

NAOJ has been playing a key role in the forefront of astronomical research worldwide, as demonstrated in the construction and operation of large-scale astronomical facilities such as Subaru Telescope, ALMA, and TMT (Thirty-Meter Telescope) as well as in the development of space-based instruments such as Hinode Satellite for solar observation, in the effort to promote cutting-edge astronomy utilizing these advanced telescopes. ATC, the research center of NAOJ for advanced technology development to support these important astronomical programs, has been producing successful results in the development of various astronomical instruments.

Microwave photonics and digital electronics are key technologies for the upgrade of existing observatories and the design and construction of the next generation of radio telescopes. In particular, the ALMA telescope, which is currently the most powerful on-ground mm/sub-mm wave astronomical facility, will need to be progressively upgraded to continue in this position towards the 2030s. The upgrade will happen in parallel to stable operations in the second phase of the project, called ALMA2. The priorities and mid-term opportunities for development have been outlined in the ALMA Development Roadmap. These include the multiplication of the IF bandwidth and the improvement of the angular resolution. The first will pose challenges in the digitization of the IF signal, and related digital and photonic electronics. For the latter, ALMA will have to increase its longer baselines (currently ~16 km) to a final goal in between 30-100 km. The increase of the distance between the furthestmost antennas (e.g., > 1000 km) will pose challenges in the distribution of the photonic local oscillator (LO) to the receivers in the different antennas, which is key to the success of interferometric observations.

We invite applications for an associate professor position at ATC. The successful candidate for this position is expected to lead research and development efforts towards high-stability photonic LO systems with time and frequency transfer capabilities, and backend and data transport systems which can be applied to the upgrade of existing facilities, such as ALMA, and other future telescopes.

The successful candidate will be a key figure in ATC, and a major player in international collaborations such as the ALMA Project. The responsibilities of this position require a continuous demonstration of leadership and outstanding performance in research activities, and also to foster collaborations among NAOJ scientists and engineers to stimulate productivity of science and development by making the best use of the strengths of NAOJ. Fostering of young scientists, engineers and technicians including PhD students is also required as part of the job responsibility.

As required qualifications for this position, applicants are expected to have a wide range of experience and skills in the field of radio astronomical instrumentation, and Time and Frequency transfer instrumentation, in particular in photonic and digital technologies, and to have good Systems Engineering ability to strongly promote astronomical research and development keeping up with the demands of the times. Apart from advanced technical and scientific knowledge, the successful candidate must have good communication and negotiation skills, and be able to work in English in large international teams. It is envisioned that the successful candidate will raise the state of NAOJ's presence in the world, as an overall outcome of the above activities.

5. Terms of Appointment:

The successful candidate should be able to start as soon as reasonably possible after the job offer has been accepted. The term of the contract will continue up to the end of the Japanese academic year in which the faculty reaches NAOJ's mandatory retirement age of 65.

The probation period is 6 months.

6. Qualification:

Minimum Educational Requirement: Ph.D. or equivalent

7. Required Application Materials: (*To be prepared in English. Any other language will not be accepted)

- (1) A cover letter,
- (2) A curriculum vitae,
- (3) A List of publications (Separate refereed and non-refereed papers. SPIE can be included in

refereed papers),

- (4) A summary of your past research activities including international collaborations,
- (5) Your commitment and plan to fulfill the duties (including your research plan as needed),
- (6) Your address (e-mail and phone) for prompt contact and the email address of your current supervisor or line manager, and
- (7) Three or more reference letters. Note that your current supervisor or line manager cannot be your reference. Please ask your references to upload their letters directly using the URL indicated in 9.(1) before the application deadline. Applicants are responsible for ensuring that the letters are submitted before the application deadline. Reference letters should be written by faculty/staff with tenured positions, and no more than two reference letters will be accepted from the same country.

8. Application Deadline: 2021-08-20, 12:00 (noon) (Japan Standard Time)

9. Submission:

- (1) Applicants are required to apply via the NAOJ Nextcloud on the web. Please access the application form at the following URL:

<https://forms.office.com/r/vQsDgya2m4>

After you submit the initial form, you will receive an email showing the URLs for (a) uploading your application documents, and (b) for your reference letters.

Once you get the URL for your application documents, please upload the files corresponding to the documents(1) through (6) stated in 7. These files must be in PDF format (max 50MB each, 100MB in total, at most 10 files).

Please ask your references to upload their letters via the URL you receive for this purpose.

- (2) If you have any question related to the job description, contact;

E-mail address: y.uzawa_AT_nao.ac.jp (replace _AT_ with @)

Yoshinori Uzawa, Director of Advanced Technology Center, NAOJ

Subject of e-mail: "Question on Associate Professor in Microwave Photonics at the NAOJ ATC"

- (3) If you have any question related to the application process or other items, contact,

E-mail address: apply-ATC-assocprof20210820_AT_nao.ac.jp (replace _AT_ with @)

Subject of e-mail: "Question on Associate Professor in Microwave Photonics at the NAOJ ATC"

10. Notes for application:

- Candidates selected in the final short list may be interviewed by the selection committee either via internet or face-to-face. The expenses incurred for the interview will not be covered by NAOJ.

11. Remarks:

- The NAOJ Advisory Committee for Research and Management will make the final decision for the appointment.
- NINS Employee Regulations (NINS, or the National Institutes of Natural Sciences, is an executive institute that manages NAOJ) shall be applied to this position.
- The successful candidate will be employed under the scheme of the annual salary system of NAOJ and will be paid monthly in 12 equal payments. Retirement Allowance shall be paid.
- Policy for Equal Employment Opportunity: Abiding by the Equal Employment Opportunity Act for Men and Women, NAOJ is committed to the realization of a society with gender equality. If two candidates are deemed equal in their performance evaluation, NAOJ will take positive action to employ women. For details, see <https://www2.nao.ac.jp/~open-info/danjokyodo/index.html>
- If you have taken a leave(s) such as for maternity, child care, and/or family care, please indicate it in your curriculum vitae. We will consider it when assessing your performance.
- Smoking is prohibited on the premises excluding designated outdoor smoking areas.
- Information submitted in your application documents will not be used for any purpose other than the selection process and for contacting you with necessary notices in connection with the selection. Once the selection process is complete, we will securely dispose of all application documents and personal information, except for those submitted by the successful candidate.