

The National Astronomical Observatory of Japan (NAOJ) invites applications for a Senior Specialist (Digital Electronics Engineer) at the ALMA Project

ALMA is currently the most advanced on-ground radio telescope at millimeter and sub-millimeter wavelengths. It is located in Chile and operated by a global partnership of East Asia, North America and Europe, in cooperation with the Republic of Chile. ALMA uses interferometric techniques for astronomical observations using a large number of antennas and combining their received signals using “correlators”. Some of the antennas can also be used in single-dish mode to calculate the spectra of astronomical sources using a “spectrometer”. The signals received at each antenna are digitized and transmitted through fiber optics to the central processing units (correlators/spectrometer). The “spectrometer” and “correlator” are real-time digital processors to calculate Fourier transforms and correlations of the high data-rate digital signals from antennas, and key instruments in ALMA.

The ALMA Compact Array (ACA) Correlator was developed based on FPGA technology by NAOJ, and it has been operated for scientific observations for more than 10 years. NAOJ, in collaboration with KASI, has recently developed a new Spectrometer based on GPU technology which will be installed at the ALMA site in 2022. ALMA is also starting to discuss the design of a next generation correlator and an upgraded digital transmission system (DTS) based on high-speed network solutions such as 400 GbE.

NAOJ seeks an engineer who works for the design, development, and maintenance of correlators / spectrometer and DTS, in close technical collaboration with international partners.

【Vacant post】

One Senior Specialist (employee on annual salary system)

【Division】

ALMA Project

【Duty Station】

2-21-1 Osawa, Mitaka, Tokyo, Japan

【Responsibilities】

This position is for an engineer with background in digital electronics and/or digital data transmission and processing. The successful candidate’s responsibilities will be assigned based on his/her expertise and knowledge and will comprise some of the following tasks:

- To perform necessary tasks for the maintenance of the ACA Correlator, based on FPGA technology, and/or the ACA Spectrometer, based on GPU technology. In particular, (1) diagnosis support of problems, (2) repairs and logistics of malfunctioning cards, and (3) technical support of workarounds for problems.
- To support the development of new instrumentation for ALMA, based on FPGA and/or GPU technologies, working in close technical collaboration with international partners, and to contribute to their maintenance upon delivery.
- To support the development and implementation in the array of an upgraded digital transmission system (DTS) based on high-speed Ethernet.
- To provide operation support and maintenance of digital instruments at the ALMA telescope in Chile, and to conduct on-site adjustment tests of newly developed instruments in Chile.

【Term of Employment】

- Employment will start from the date as soon as reasonably possible after the job offer has been accepted. The term is for 3 years (※1), including the probation period of 6 months.

※1: In the final fiscal year of the employment, NAOJ will conduct a review on the amount of assigned work, the status of ongoing work, work skills, work performance, work attitudes, and the financial situation of the National Institutes of Natural Sciences (NINS) at the expiration of the term of employment. Based on the review results, the term of employment may be extended. (※2)

※2: For a person who has been employed by NINS within 6 months retroactively from the starting date, the term will be set so that the total employment period from April 1, 2013 will be less than 10 years.

【Working Hours】

- 5 days a week (Monday through Friday) with Saturday and Sunday off, national holidays, year-end and new year holidays (from December 29 through January 3 of the next year).
- From 8:30 am (start of working hours) to 17:15 (closing of working hours) including 60-min lunch break each day. The total working hours will be 38.75 hours a week.

【Compensation】

- Salary will be paid based on annual salary system, equivalent to an assistant professor at national universities or equivalent to an engineer at NAOJ in job classification.
 - One-twelfth of the annual salary will be paid every month. The amount of annual salary is determined according to responsibilities of work, actual performance, and experience etc.
 - Salary will be reviewed every fiscal year according to the results of performance reviews.
- Commuting allowance (up to 55,000 yen / month)
*Allowances are provided pursuant to the NINS internal rules and regulations.
- Health insurance, pension insurance, unemployment insurance, and industrial accident insurance will be provided.
- Paid days off (annual leave, summer holidays, and bereavement leave, etc.)
- Day-care center for children (from 57 days after birth). *Availability depends on the situation. Childcare staff does not provide English support.
- Smoking is prohibited on the premises excluding designated outdoor smoking areas.

【Qualification Requirements】

Applicants should fulfill at least a few of the following qualification requirements:

1. To be familiar with digital circuits and signal processing technology.
2. To be familiar with FPGA, GPUs and related technologies.
3. To be familiar with high-speed data transmission and networking.
4. To have problem-solving skills in a mathematical way.
5. To have ability to read and write technical documents in English and communicate in English.

【Selection】

A candidate will be selected through screening of application documents and interview.

【Application documents】

- (1) A curriculum vitae with a face photograph
- (2) A summary of past work experiences (can be merged with the document (1))
- (3) A personal statement describing intentions for the applied position including related experience and achievements (in two pages of A4 sized paper)
- (4) Your e-mail address and phone number for prompt contact

【Application deadline】

March 15th, 2022, 12:00 (JST)

【Submission】

The documents should be prepared in English, and converted to PDF (max 10MB per email) and send them to the submission e-mail address below with a subject line “Application for ‘Senior Specialist (Digital Electronics Engineer)’”

Please contact us if you do not receive a reply within three working days.

【Contact】

(Inquiry about application)

NAOJ Personnel Unit, General Affairs Group, Administration Department

E-mail: JobRegister-contact-10_AT_ao.ac.jp (replace _AT_ with @)

Subject of e-mail: “Question on Senior Specialist (Digital Electronics Engineer) at ALMA Project”

(Inquiry about job details)

NAOJ ALMA Project, Kenichi Kikuchi

E-mail : kenichi.kikuchi_AT_ao.ac.jp (replace _AT_ with @)

Subject of e-mail: “Question on Senior Specialist (Digital Electronics Engineer) at ALMA Project”

(Submission of application documents)

E-mail: alma-yuki-application_AT_nao.ac.jp (replace _AT_ with @)

【Others】

- Candidates selected in the final short list may be interviewed by the selection committee either via internet or face-to-face. The expense for the interview will not be covered by NAOJ.
- This position is not applicable to the debt-forgiveness program of the Japan Scholarship Foundation.
- Abiding by the Equal Employment Opportunity Act for Men and Women, NAOJ is committed to the realization of a society with gender equality. If candidates are deemed equal in their performance evaluation, NAOJ will take positive action to employ women. See below for details
<https://www2.nao.ac.jp/~open-info/gender-equality/en/>
- 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.