The Kobayashi-Maskawa Institute for the Origin of Particles and the Universe (KMI) at Nagoya University invites applications for a postdoctoral researcher in the field of direct dark matter detection in the Universe.

About KMI and the Research Group

The Kobayashi-Maskawa Institute for the Origin of Particles and the Universe (KMI) at Nagoya University is a premier research institute in Japan dedicated to exploring fundamental questions in particle physics and cosmology. Established in 2010, KMI brings together experimental and theoretical physicists working on topics such as dark matter, neutrinos, and high-energy physics. As part of its mission, KMI has recently launched an international research center for dark matter physics, integrating direct/indirect detection, collider searches, and theoretical studies to unravel the nature of dark matter.

Within KMI, the astroparticle physics group, led by Prof. Shingo Kazama, is actively involved in the XENONnT dark matter experiment and XLZD, a next-generation large-scale liquid xenon (LXe) dark matter observatory. Nagoya Group has made key contributions to XENONnT, including the purification of LXe, neutron veto system, and data analysis. In addition, we are leading R&D efforts for XLZD, focusing on the development of low-background technologies.

1. Job Title: Researcher

2. Affiliation (Employer): The Kobayashi-Maskawa Institute for the Origin of Particles and the Universe, Nagoya University (Tokai National Higher Education and Research System)

3. Job Description:

(Immediately after being hired):

The successful candidate is expected to play a leading role in both data analysis and detector R&D, as well as mentor graduate and undergraduate students in our group. Primary responsibilities include data analysis for XENONnT and R&D on low-background technologies for XLZD, with a focus on developing a hermetic LXe time projection chamber (TPC), single-phase LXe TPC with microstrip electrode, and/or characterizing new VUV photodetectors developed with Hamamatsu Photonics (PMTs, SiPMs, and hybrid photosensors). Extended stays at the experimental site (Laboratori Nazionali del Gran Sasso, Italy) may be required for detector maintenance, data-taking shifts, and other experimental duties.

(Scope of change):

Work specified by Tokai National Higher Education and Research System

4. Work Location:

(Immeidately after being hired): Kobayashi-Maskawa Institute for the Origin of Particles and the Universe (KMI), Nagoya University
(Scope of change): Work space designated by Tokai National Higher Education and Research System

5. Employment Conditions:

- **Start Date**: Flexible.
- **Duration**: The annual employment period runs from April 1 to March 31 each fiscal year. The appointment is renewable every fiscal year, with the possibility of extension up to March 31st 2029, subject to satisfactory performance and funding availability.
- **Salary**: Compensations will be based on the annual salary system and may vary based on the successful candidate's experiences (as stipulated in the rules of Tokai National Higher Education and Research System).
- **Teaching**: No teaching duties are required.
- **Holidays**: Saturdays, Sundays, national holidays, summer holidays and year-end holidays (December 29 - January 3)
- **Leave**: Paid annual leave, sick leave, and special leave
- **Social insurance**: Mutual Aid Association (health insurance), welfare pension, employment insurance and workers' compensation insurance
- **Passive smoking prevention measures**: Smoking is basically prohibited on campus.

6. Required Qualifications:

- Ph.D. in experimental particle physics, astroparticle physics, or a related field.
- Candidates expecting to obtain their Ph.D. before the start date are also eligible.
- Strong programming skills, particularly in Python and C++ for data analysis and simulations.

7. Preferred Qualifications:

- Background in liquid noble gas detectors, dark matter searches, or low-background physics.
- Experience with GEANT4 or other Monte Carlo simulations.

8. Application Process:

To apply, please send the following documents via email to kazama[at]nagoya-u.jp, and indicate "Postdoc Application" in the email subject:

1. Cover letter
2. CV with expected start date

3. Research statement (2-3 pages)
4. Publication list, marking up to three most important papers
5. Two reference letters

Applications will be reviewed on a rolling basis until the position is filled, but no later than September 30, 2025. Later applications may be considered until the end of March 2026, if the position remains open.

Informal inquiries about this job can be made to kazama[at]nagoya-u.jp

9. Notes

- Personal information provided in relation to the application will be used only for the purpose of screening. Upon completion of the screening, all personal information, except for information of those who passed the screening, will be discarded responsibly.
- Nagoya University is committed to increasing diversity and providing equal career opportunities to underrepresented groups. Applications from women and individuals who contribute to diversity in physics are particularly encouraged.
- In November 2021, with the clarification of the scope of control of "deemed exports" under the Foreign Exchange and Foreign Trade Act ("FEFTA"), a portion of the provision of confidential information must comply with FEFTA. Technology provided by universities and research institutions to faculty and staff is FEFTA is subject to control. As a result of this change, faculty applications will also be subject to FEFTA controls. When applying for this solicitation, you will be required to submit an Applicable Specific Category Determination Form in accordance with the Applicable Specific Category Determination Flowchart. Please download the form below and submit it.