Job position List for 2025

Content

Part I Accelerate Technology and Physics

No.1. Researcher - Charged Ion Source and Its Pre-Acceleration Technology

Major Duties/Responsibilities:

1. Undertake the R&D of strong current RFQ accelerator;
2. Undertake the R&D of new negative hydrogen ion sources;
3. Participate in the pre-research work of the electron gun and its pre-acceleration system of the Southern Photon Source;
4. Responsible for the assembly, commissioning, operation and maintenance of the CSNS accelerator front-end system.

Basic Qualifications:

- Ph.D. degree in Nuclear Science and Technology and Plasma Physics or related field;
- Post-doctoral or research assistant experience;
- Background in plasma physics, accelerator physics, atomic and molecular physics, or electronic information engineering;
- Experience in ion source and linear accelerator design is preferred;
- Strong interpersonal and communication skills (written and oral English).

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.2. Researcher - Magnetic Measurement Technology of Accelerator Magnet

Major Duties/Responsibilities:

1. Undertake the development and research of accelerator multi-pole magnet magnetic measurement technology;
2. Responsible for the design and development of advanced magnetic measurement system of Southern Photon Source;
3. Responsible for the upgrading and transformation of the existing magnetic measurement system;

Basic Qualifications:

- Ph.D. degree;
- Professional background in nuclear technology;
- Proficient in the use of LabVIEW and other professional software;
- Experience in magnetic field measurement is preferred;
- Strong English communication and writing skills.

No.3. Researcher - Accelerator Physics

Overview

The main goal of this position is to study the accelerator physical design of South China Advanced Photon Source (SAPS) and China Spallation Neutron Source II (CSNS-II). At the same time, this position requires participation in key technical pre-study.

Major Duties/Responsibilities:

1. Participate in the physical design of CSNS-II accelerator;
2. Participate in the physical design of accelerator for SAPS;
3. Responsible for CSNS beam experiment and beam adjustment;
4. Cutting-edge research work in accelerator physics.

Basic Qualifications:

- Ph.D. in Particle Physics and Nuclear Physics, with postdoctoral or special research assistant experience;
- Have a professional background in accelerator physics and have participated in related projects;
- Proficient in the use of beam dynamics simulation software;
- Strong English communication skills and writing skills;
- Experience in accelerator physics design is preferred.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.4. Researcher - Experimental Physics of White Light Neutron Sources

Major Duties/Responsibilities:

1. Undertake nuclear data measurement and research based on white light neutron source;
2. Undertake research on non-destructive testing and imaging technology of white light neutron source;
3. Undertake the measurement of beam characteristics of white light neutron source;
4. Participate in the development, testing and data analysis of white light neutron source detectors;
5. Support and assist users of white light neutron source to carry out experimental research;

Basic Qualifications:

- Ph.D. candidate in Nuclear Technology and Application, with postdoctoral or special research assistant experience;
- Professional background in nuclear science and technology/nuclear technology and application/particle physics and nuclear physics;
- Proficient in the use of Geant4 and ROOT software;
- Experience in the use of artificial intelligence technologies such as machine learning and deep learning;
- Experience in conducting experimental research on large scientific facilities is preferred;
- Strong English communication skills and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.5. Researcher - Positron Technology

Major Duties/Responsibilities:

1. Undertake the design of the positron application platform based on Muon;
2. Undertake the R&D of positron moderation equipment;
3. Coordinate positron users associated with spallation neutron sources;
4. Participate in the R&D and testing of Muon moderation experiments.

Basic Qualifications:

- Ph.D. candidate in Nuclear Technology and Applications or Particle Physics, with postdoctoral or special research assistant experience;
- Professional background in nuclear technology or particle physics;
- Proficient in using Geant4/root software;
- Experience in positron device design/construction/application is preferred;
- Strong English communication and writing skills.

No.6. Researcher - Muon Beamline Engineering

Major Duties/Responsibilities:

1. Undertake the optimization design of the muon source target station and beamline;
2. Undertake the construction and commissioning of the muon source project;
3. Participate in the application of Muon.

Basic Qualifications:

- Ph.D. candidate in Nuclear Technology and Applications or Particle Physics, with postdoctoral or special research assistant experience;
- Professional background in nuclear technology or particle physics;
- Proficient in using Geant4/root software;
- Experience in muon beamline design/artificial intelligence algorithm/accelerator engineering construction is preferred;
- Strong English communication and writing skills.

No.7. Researcher - Isotope Target Station and Target Physics

Major Duties/Responsibilities:

1. Undertake the physical design and engineering design of isotope target stations and targets;
2. Summarize and communicate the design parameters of irradiated target stations and targets;
3. Participate in the construction of isotope target stations and targets.

Basic Qualifications:

- Ph.D. candidate in Nuclear Technology and Applications or Particle Physics, with postdoctoral or special research assistant experience;
- Professional background in nuclear technology or particle physics;
- Proficient in using FLUKA or Geant4 and other Munka particle transport calculation software;
- Experience in nuclear device design is preferred;
- Strong English communication and writing skills.

No.8. Researcher - Isotope Mass Separation Technique

Major Duties/Responsibilities:

1. Participate in the physical design of the isotope generation platform;
2. Undertake the construction of isotope mass separation system;
3. Responsible for the construction and future operation of the isotope generation platform;
4. Responsible for the document management of the project

Basic Qualifications:

- Ph.D. candidate in Nuclear Technology and Applications or Particle Physics, with postdoctoral or special research assistant experience;
- Professional background in nuclear physics and nuclear technology;
- Proficient in the use of FLUKA or Geant4 and other simulation software;
- Experience in the study of the interaction between laser and atomic nucleus is preferred;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.9. Researcher - High-current Accelerator

Major Duties/Responsibilities:

1. Undertake the research on beam loss of strong current linear accelerator;
2. Undertake the physical research of isotope linear accelerators;
3. Participate in the installation and commissioning of CSNS-II linear accelerator superconducting cavity

Basic Qualifications:

- Ph.D. candidate in Nuclear Technology and Applications
- Professional background in accelerator physics
- Proficient in the use of accelerator physics and technology-related simulation software
- Experience in accelerator-related engineering projects is preferred
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.12. Researcher - High Voltage Power Supply

Major Duties/Responsibilities:

1. Undertake the operation and maintenance of CSNS linear RF system;
2. Undertake the research and development of CSNS-II high-voltage solid-state modulator;
3. Participate in the design of CSNS-II RF power source;
4. Participate in the commissioning and operation of CSNS-II RF power source;
5. Participate in the pre-research work of Southern Photon Source.

Basic Qualifications:

- Ph.D. in Electronic Science and Technology, Electrical Engineering;
- Professional background in power electronics, electromagnetic field and electromagnetic wave or high voltage and insulation technology;
- Proficient in using circuit simulation software such as Altium, MATLAB or Pspice;
- Experience in high-voltage power supply, modulator design, etc. is preferred;
- Have programming experience in FPGA, PLC and other programmable logic devices. Strong English communication and writing skills.

No.13. Researcher - Power Source Technology

Major Duties/Responsibilities:

1. Participate in the maintenance and operation of CSNS power supply system;
2. Undertake the research and development of software upgrades and localization of power system digital controllers and other related topics, including code writing, testing, etc., and finally reach the expected technical indicators of the project;
3. Participate in the construction of CSNS-II power supply and pulse power system engineering.

Basic Qualifications:

- Doctoral degree, major in Power Electronics and Power Transmission or Automatic Control;
- In-depth understanding of Quartus-II. software based on FPGA hardware circuit design, familiar with the use of Verilog-HDL language and other related languages, and have certain design experience;
- Have the spirit of teamwork, work conscientiously and responsibly, and be positive.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.14. Researcher - Pulse Power Technology for CSNS

Major Duties/Responsibilities:

1. Participate in the research and development of fast pulse power supply technology in the injection system of Advanced Photon Source;
2. Undertake the operation and maintenance of China Spallation Neutron Source;
3. Participate in other scientific research work of the research group.

Basic Qualifications:

- Doctoral degree, major in High Voltage & Insulation Technology, Electromagnetic Field & Microwave Technology, Nuclear Technology & Applications.
- Professional background in high voltage, electromagnetic field design, etc.;
- Experience in fast pulse power supply design is preferred;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.15. Researcher - Accelerator beam diagnosis

Major Duties/Responsibilities:

1. Undertake the development of CSNS-II accelerator beam profile detector and beam loss detection system;
2. Undertake the pre-research beam diagnosis and development of Southern Photon Source;
3. Participate in the commissioning, operation and maintenance of CSNS accelerator beam diagnosis system.

Basic Qualifications:

- Ph.D. in Nuclear Technology and Application, with postdoctoral experience
- Professional background in detector or nuclear electronics;
- Experience in beam detector design and laser application is preferred;
- Have good teamwork skills;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.16. Researcher - Accelerator Control

Major Duties/Responsibilities:

1. Undertake the software development of CSNS-II accelerator big data acquisition and fault analysis system;
2. Undertake the development of ZYNQ-based embedded software for CSNS-II accelerator control system;
3. Participate in the assembly, commissioning, operation and maintenance of CSNS-II accelerator control system.

   Or

1. Undertake the research work of accelerator control technology based on machine learning in CSNS-II;
2. Responsible for the design and development of machine learning systems for accelerator operation, including data acquisition, data annotation, model training, model services, etc., building upper-layer applications and undertaking part of the algorithm R&D;
3. Participate in the assembly, commissioning, operation and maintenance of CSNS-II accelerator control system.

Basic Qualifications:

- Ph.D. in Nuclear Technology and Application, Electronic Information, Computer, Automation and related majors;
- Proficient in C/C++, familiar with any language of Python or Java;
- Understand common tools and frameworks such as Kafka, Kubernetes, and Docker;
- Strong English communication skills and writing skills.

  Or

- Ph.D. in Nuclear Technology and Application, Particle Physics and Nuclear Physics, Data Science and Big Data Technology, Pattern Recognition and Intelligent Systems, etc.
- Familiar with at least one mainstream deep learning tool TensorFlow/Pytorch, etc.;
- Familiar with at least one programming language, such as Java or Python; Passionate about programming and big data analysis;
- Strong English communication skills and writing skills.

No.17. Postdoctoral Researcher – Low-level Technique

Major Duties/Responsibilities:

1. Carry out the pre-research work of the low-level system of the Southern Advanced Photon Source;
2. Carry out research on advanced low-level control technology;
3. Assist in the operation and maintenance of CSNS;
4. Participate in other scientific research work of the research group

Basic Qualifications:

- Ph.D. students with a professional background in High-Frequency and Microwave Technology
- Accelerator physics foundation is preferred;
- Strong English communication and writing skills.

No.18. Postdoctoral Researcher – High Gradient Accelerated Structure Research

Major Duties/Responsibilities:

1. Undertake the R&D of high-gradient acceleration structure,
2. Undertake the R&D of acceleration tube debugging system;
3. Participate in the development and testing of CSNS-II beam chamber;
4. Participate in the installation and commissioning of CSNS-II linear accelerator superconducting cavity

Basic Qualifications:

- Ph.D. students with professional background in RF and microwave;
- Proficient in using CST software;
- Experience in high-frequency cavity design is preferred;5. Strong English communication and writing skills.

No.19. Postdoctoral Researcher – Linear Accelerator Beam Physics

Major Duties/Responsibilities:

1. Conduct research on linear accelerator beam dynamics;
2. Carry out research on beam modulation simulation and linear accelerator power increase;
3. Develop superconducting accelerator rapid recovery software

Basic Qualifications:

- Ph.D. degree in physics;
- Experience in beam dynamics research;
- Experience in programming (Java, Python, C, C++, etc.) and numerical computing is preferred;
- Work conscientiously and responsibly, proactively; Have independent and innovative scientific research ability, and have a strong team spirit.
- Strong English communication and writing skills.

No.20. Postdoctoral Researcher – Digital Controller Development

Major Duties/Responsibilities:

1. Participate in the R&D software upgrades and localization of power supply systems, digital controllers, etc.;
2. Assist in the operation and maintenance of the China Spallation Neutron Source;
3. Participate in other scientific research work of the research group.

Basic Qualifications:

- Ph.D. candidate;
- Professional background in electrical engineering and automatic control;
- Design experience in FPGA chip development is preferred;
- Strong English communication and writing skills.

No.21. Postdoctoral Researcher – Development of Advanced Beam Diagnostic Technology

Major Duties/Responsibilities:

Undertake the development of non-interception beam diagnostic detectors or electronic systems for CSNS-II

Basic Qualifications:

- Ph.D. candidate with a professional background in particle physics or nuclear technology;
- Proficient in the use of beam dynamics, ANSYS, CST and other software;
- Experience in beam detector design is preferred;
- Strong English communication and writing skills.

No.22. Postdoctoral Researcher – Medical Isotope Separation Analysis Research

Major Duties/Responsibilities:

1. Conduct research on the process technology for the separation and purification of medical isotopes.
2. Participate in quality control analysis of medical isotopes.
3. Responsible for writing and publishing research papers.

Basic Qualifications:

- Education: Ph.D. graduate.
- Background in radiochemistry, nuclear technology applications, or analytical chemistry.
- Experience in the preparation and application of medical isotopes, radioactive isotope separation and purification, or related measurements is preferred.
- Strong English communication and writing skills.

Part II Neutron Scattering Application

No.1. Researcher - Physical Properties of Quantum Materials

Major Duties/Responsibilities:

Carry out research on the physical properties of electronic materials or batteries, through neutron scattering, muon spin oscillation, synchrotron radiation and other means.

Basic Qualifications:

- Ph.D. with a professional background in physics, chemistry or materials, with postdoctoral or special research assistant experience;
- Experience in condensed matter physics research;
- Experience in neutron scattering experiments is preferred;
- Good English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.2. Researcher - Battery Material Research

Major Duties/Responsibilities:

Carry out battery research based on neutron scattering.

Basic Qualifications:

- Ph.D. with a professional background in physics, chemistry or materials, with postdoctoral or special research assistant experience;
- Have experience in battery research;
- Experience in neutron scattering experiments is preferred;
- Good English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.3. Researcher – Very small angle neutron scattering Research

Major Duties/Responsibilities:

1. Undertake the user service work of condensed matter physics and related metals, batteries and superconducting materials of micro angular spectrometer;
2. Participate in the research and development of data analysis software for Very small angle neutron scattering (VSANS);
3. Responsible for the assembly, commissioning, operation and maintenance of VSANS.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in neutron and X-ray scattering data analysis;
- Proficient in using at least one of the professional software for processing neutron and X-ray scattering data such as Gromacs, Atsas, Igor, Sasview, etc.;
- Experience in neutron and X-ray use is preferred;
- Strong English communication and writing skills.

No.4. Researcher - Elastic Diffuse Scattering Neutron Spectrometer

Overview

Elastic diffuse scattering neutron spectrometer (EDS) is mainly aimed to characterize the short-range order of atomic displacement, vacancies and spins in single crystal sample. This instrument will consist a suite of single crystal neutron diffraction for studies of material science, condensed matter physics and molecular systems.

Major Duties/Responsibilities:

1. Undertake the design and construction of elastic diffuse scattering neutron spectrometer;
2. Undertake the operation and maintenance of elastic diffuse neutron spectrometer;
3. Support users to complete relevant experiments, develop potential users, and promote the application of spectrometers;
4. Carry out research on scattering methods and applications based on elastic diffuse scattering neutron spectrometer;
5. Carry out research work based on other spectrometers of CSNS.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in X-ray or neutron scattering technology;
- Proficient in the use of structural analysis and refinement software, such as Fullprof, Jana, etc.;
- Experience in X-ray or neutron single crystal diffraction (or working in neutron sources at home and abroad) is preferred;
- Strong English communication and writing skills;
- Be proficient in using Python and other computer languages for scientific calculations.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.5. Researcher – Non/quasi-Elastic Neutron Scattering Technique

Major Duties/Responsibilities:

1. Undertake the design and construction of neutron backscattering spectrometer;
2. Apply quasi-elastic neutron scattering technology to engage in related research work;
3. Participate in the user training, organization, and service of neutron backscatter spectrometer.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Have a professional background in physics, chemistry, biology, materials, etc.;
- Experimental experience in the use of neutron scattering technology or X-ray scattering technology;
- Experience in non-(quasi-) elastic neutron scattering technology is preferred;
- Experience in MATLAB, Python and LabVIEW programming is preferred;
- Have a strong interest in scientific research, be proactive, willing to serve users, and have strong teamwork skills.

No.6. Researcher – Design of Inverse Geometry Molecular Vibration Spectrometer

Major Duties/Responsibilities:

1. Undertake the design and development of inverse geometry molecular vibration spectrometer (iMovies);
2. Participate in the installation, commissioning, operation, maintenance and user support of the inverse geometry molecular vibration spectrometer;
3. Participate in the data analysis of the inverse geometry molecular vibration spectrometer.

   Or

1. Undertake the construction, commissioning, operation, maintenance and user support of the inverse geometry molecular vibration spectrometer;
2. Undertake the application research of elastic/inelastic neutron scattering;
3. Responsible for the data analysis of the inverse geometry molecular vibration spectrometer.

Basic Qualifications:

- Ph.D. student, with postdoctoral or special research assistant experience;
- Professional background in physics, chemistry or materials;
- Experience in first-principles theoretical calculation and molecular dynamics simulation, familiar with the corresponding software is preferred;
- Experience in neutron scattering research is preferred;
- Strong English communication and writing skills.

  Or

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in physics, chemistry or materials;
- Have experience in first-principles theoretical calculation and molecular dynamics simulation, and be familiar with the corresponding software;
- Have certain programming ability, familiar with Python and machine learning is preferred;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.7. Researcher – Small Angle Neutron Scattering Data Analysis

Major Duties/Responsibilities:

1. Undertake the software development of CSNS small-angle neutron scattering data analysis and processing;
2. Undertake the user data analysis and methodology research of CSNS small angle neutron scattering instrument;
3. Participate in the data analysis and processing of CSNS small angle neutron scattering instrument users;
4. Participate in the operation and maintenance of the small angle spectrometer.
5.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in magnetic materials or condensed matter physics;
- Experience in scattering data analysis and processing and related software development is preferred;
- Strong English communication and writing skills.

No.8. Researcher – Engineering Materials Diffraction Instrument

Major Duties/Responsibilities:

1. Assisting users to complete texture measurement experiments and data collection, and participate in user education as needed and ensure that users are provided with data that can be analyzed;
2. Promote the development of engineering materials diffraction instrument, sample environment Euler rings, and data analysis software to help maintain and further improve the performance of the instrument;
3. Attract new users, especially those in areas related to texture characterization and residual stress analysis, to expand the user base and increase the impact of neutron scattering in texture and residual stress measurements.

Basic Qualifications:

- Ph.D. in materials science or related majors, with postdoctoral or special research assistant experience;
- Understand the relevant theories and analysis methods of texture, master at least one Rietveld refinement software, and know how to conduct texture analysis;
- Have experimental experience in neutron or X-ray, preferably with experience in using radiation to complete texture measurement and analysis. 4. Master C language and have basic programming skills.

No.9. Researcher – Neutron Physics research

Major Duties/Responsibilities:

1. Participate in the neutron physics design and simulation calculation of CSNS target station power upgrade;
2. Undertake the simulation and calculation of the shielding design of the CSNS-II target station spectrometer;
3. Assist in other work of the Neutron Physics Group.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in neutron physics/particle physics and nuclear physics;
- Strong professional knowledge of neutron physics, with research experience in neutron physics simulation and calculation is preferred;
- Strong English listening, speaking, reading and writing skills;
- Outstanding teamwork skills, innovation and ability to work under pressure.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.10. Researcher – Thermal Analysis and Experiment

Major Duties/Responsibilities:

1. Undertake the thermal analysis and simulation calculation of each component of the CSNS target station power upgrade;
2. Undertake the design, construction and maintenance of thermal experimental platform;
3. Participate in other work of the Neutron Physics Group.

Basic Qualifications:

- Ph.D. in Power Engineering and Engineering Thermo-physics;
- Experience in engineering thermal design and simulation calculation is preferred;
- Proficient in spoken English, strong reading and writing skills;
- Have outstanding teamwork ability, innovation ability and ability to work under pressure.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.11. Researcher – Liquid Neutron Interface Reflection Spectrometer

Major Duties/Responsibilities:

1. Undertake the physical design of spectrometer engineering and the definition of key parameters;
2. Participate in the simulation of the expected performance of the spectrometer;
3. Undertake the use of ray tracing to evaluate the design parameters of the spectrometer;
4. Undertake the feasibility assessment of new technologies and new optical components of the spectrometer;
5. Participate in the research and development of key optical and control equipment;
6. Responsible for the pre-research, development, assembly, commissioning, operation and maintenance of key equipment of the spectrometer.
7. Responsible for the establishment of domestic/international partnerships and the promotion of spectrometers.

Basic Qualifications:

- Ph.D. in Condensed Matter Physics, Biophysics, Materials Physics and Chemistry, Polymer Physics, with postdoctoral or special research assistant experience;
- Experience in grazing incidence small-angle neutron scattering or X-ray/neutron surface scattering technology;
- Experience in using McStas software simulation or other ray tracing simulation software is preferred;
- Experience in the design or construction of large-scale neutron/X-ray spectrometer devices is preferred;
- Strong English communication and writing skills.

No.12. Researcher – High Resolution Neutron Diffractometer Operation

Major Duties/Responsibilities:

1. Responsible for the operation, maintenance and user support of high-resolution neutron diffractometer, mainly responsible for data analysis of functional materials with complex crystal structures (such as porous materials, organic molecular crystal materials, etc.);
2. Participate in the research of physical properties of materials based on neutron scattering methods.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in physics, chemistry or materials;
- Experience in neutron scattering experiments and data analysis of functional materials with complex crystal structures (such as porous materials, organic molecular crystal materials, etc.) is preferred;
- Strong English communication and writing skills.

No.13. Researcher – Neutron Detector Readout Electronics

Major Duties/Responsibilities:

1. Responsible for the research and development of neutron detector readout electronics, including circuit design, simulation, testing and debugging, etc.;
2. Participate in the development and maintenance of data acquisition system and data analysis software of neutron spectrometer;
3. Track the latest technical trends in related fields at home and abroad, and put forward improvement plans and innovative ideas;
4. Complete other tasks assigned by the leader.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Major in physics, electronic engineering or related is preferred;
- Experience in R&D of neutron spectrometer or other large-scale scientific device detector readout electronics is preferred;
- Familiar with commonly used circuit design software and test instruments, able to independently complete circuit design, simulation, testing and debugging;
- Familiar with C/C++, Python and other programming languages, experience in data acquisition system and data analysis software development is preferred;
- Have good team spirit and communication skills, and be able to work under pressure and challenges;
- Have strong English listening, speaking, reading and writing skills, able to read relevant professional literature and write technical reports.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.14. Researcher – Neutron Detector Research (^{3}He Tube)

Overview:

The main goal of this position is to study the detector physics and develop advanced thermal neutron detectors for the instruments of China Spallation Neutron Source phase II (CSNS II). The task will include detector physics research, Monte Carlo simulation, prototype development, engineering design and optimization, massive fabrication, installation and the commissioning. In addition to train doctoral students as a supervisor, you will also have the opportunity to collaborate with users and staff to develop new methods for neutron measurements.

Major Duties/Responsibilities:

1. Undertake the R&D of neutron detectors;
2. Participate in the R&D of other detectors of neutron spectrometer;
3. Responsible for the assembly, commissioning, operation and maintenance of the neutron detector of CSNS-II of the related spectrometer.

Basic Qualifications:

- Ph.D. in particle physics, nuclear physics and related majors, with postdoctoral or special research assistant experience;
- Professional background in neutron detector research and development;
- Proficient in using detector simulation and analysis software;
- Experience in gas neutron detector design is preferred;
- Strong English communication skills and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.15. Researcher – Cold Non-elastic Neutron Scattering Spectrometer

Major Duties/Responsibilities:

1. Undertake the design and development of cold non-elastic neutron spectrometer;
2. Undertake the construction and maintenance of cold non-elastic spectrometer;
3. Undertake the operation of neutron experiments of cold non-elastic spectrometer
4. Participate in the user training of cold non-elastic spectrometer.

Basic Qualifications:

- Ph.D. in Condensed Matter Physics, Particle Physics and Nuclear Physics, with postdoctoral or special research assistant experience;
- Experience in neutron scattering experiments and research;
- Independent programming and simulation work experience is preferred;
- Learning experience in neutron source and light source is preferred;
- Good English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.16. Researcher – Polarized Nonelastic Neutron Scattering Spectrometer

Major Duties/Responsibilities:

1. Participate in the physical design of the polarimetric non-elastic spectrometer;
2. Participate in the development of neutron polarization equipment;
3. Participate in the construction of polarimetric non-elastic spectrometer;
4. Participate in the commissioning, operation and maintenance of polarimetric non-elastic spectrometer.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in Condensed Matter Physics and Materials Physics;
- Research experience in inelastic neutron scattering, polarized neutrons, inelastic X-rays, angle-resolved photoelectron spectroscopy, Brillouin scattering, Raman spectroscopy, etc.
- Experience in Mcras software, first-principles calculations, and molecular dynamics simulation is preferred;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.17. Researcher – High Energy Non-Elastic Neutron Scattering Research

Major Duties/Responsibilities:

1. Undertake the commissioning and operation of high-energy non-elastic;
2. Participate in the R&D of high-energy non-elastic data analysis;
3. Participate in user contact and internal research work.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in condensed matter physics;
- Proficient in using Python or C++ and other code writing languages;
- Experience in non-elastic neutron scattering experiments is preferred;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.18. Researcher – In-situ Reaction Sample Environment

Major Duties/Responsibilities:

1. Undertake the research and development of environmental equipment for in-situ reaction samples such as heat, pressure, atmosphere, light, electricity, and chemistry;
2. Undertake the research and development of environmental equipment for in-situ reaction samples with low signal-to-noise ratio, as well as the debugging of neutron scattering experimental performance of sample environmental equipment;
3. Participate in neutron scattering experiments under in-situ reaction conditions of chemical, energy and other materials;
4. Undertake the assembly, commissioning, operation and maintenance and upgrading of self-developed equipment;
5. Participate in other work assigned by the sample environment system;

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Have a professional background in catalysis/materials/machinery, etc.;
- Proficient in the use of infrared, Raman and other molecular spectroscopy structure analysis, understanding of structure analysis and refinement software (such as Fullprof, Jana, etc.) is preferred;
- Experience in in-situ reactor design related to neutron source or photon source, proficient in ANSYS and SOLIDWORKS is preferred;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.19. Researcher – Neutron Technology Development Line Station Project

Major Duties/Responsibilities:

1. Undertake the design and construction of neutron technology development line stations;
2. Participate in neutron technology and application research;
3. Provide technical support for beam line testing and experimental data analysis;
4. Complete other tasks assigned by superiors.

Basic Qualifications:

- Ph.D. in nuclear technology;
- Proficient in the use of scientific computing and particle Monte Carlo simulation software;
- Have the ability to learn new knowledge quickly and solve problems agilely;
- Work conscientiously and responsibly, and be proactive;
- Strong English listening, speaking, reading and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.20. Researcher – Neutron Physics and Applied Spectrometer

Major Duties/Responsibilities:

1. Undertake the design, construction and application research of ultra-cold neutron source;
2. Undertake the research work of low background methodology of neutron physics and applied spectrometer;
3. Participate in the design, construction and application research of neutron physics and application spectrometer;
4. Participate in the commissioning, operation and maintenance of neutron physics and application spectrometers;
5. Participate in other work of the Neutron Physics Group.

Basic Qualifications:

- Ph.D., with postdoctoral experience or special research assistant experience;
- Professional background in Particle Physics and Nuclear Physics, Nuclear Technology and Application, Nuclear Engineering and Nuclear Technology, and Nuclear Energy Science and Engineering;
- Strong professional knowledge of neutron physics, with research experience in neutron transport calculation and low background methodology is preferred;
- Strong English communication and writing skills.

No.21. Researcher – Neutron physics and Applied Spectrometer Data Analysis

Major Duties/Responsibilities:

1. Undertake the research of energy spectrum data analysis methods for neutron activation analysis;
2. Undertake experimental methodology research on neutron activation analysis;
3. Participate in the design, construction and application research of neutron physics and application spectrometer;
4. Participate in the commissioning, operation and maintenance of neutron physics and application spectrometers;
5. Participate in other work of the Neutron Physics Group.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in particle physics and nuclear physics, nuclear technology and application;
- Strong professional knowledge of nuclear detection, and experience in spectral related research is preferred;
- Strong English communication and writing skills.

No.22. Researcher – Polarized Helium-3 Systems

Major Duties/Responsibilities:

1. Undertake the R&D of CSNS-II polarized helium-3 system;
2. Undertake the R&D of polarized helium-3 and polarized neutron equipment;
3. Participate in the R&D of polarimetric neutrons in the spallation source spectrometer line;
4. Responsible for the assembly, commissioning, operation and maintenance of polarized helium-3 and polarized neutron equipment.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in neutron scattering or polarized gases;
- Experience in device R&D and engineering design is preferred;
- Strong English communication and writing skills.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.23. Researcher – Target System Development and Operation

Major Duties/Responsibilities:

1. Undertake the R&D of key materials for targets;
2. Undertake the development of the second phase of the target system high-power solid target;
3. Participate in the operation and maintenance of the target system, and analyze the operation data.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in materials;
- Proficient in the use of material professional research and analysis software;
- Research background in nuclear materials research, dissimilar metal welding and simulation is preferred;
- Strong English communication and writing skills.

No.24. Researcher – Operation of Multi-physics Instrument

Major Duties/Responsibilities:

1. Undertake the daily operation of Multi-physics Instrument;
2. Undertake neutron total scattering data analysis;
3. Carry out research work related to energy structural materials relying on neutron total scattering technology, such as reactor structural materials, hydrogen embrittlement-resistant, etc.;
4. Participate in the R&D of multi-physics instrument sample environment.

Basic Qualifications:

- Ph.D. in materials science, physics and other related majors, with postdoctoral or special research assistant experience;
- Proficient in the use of conventional material characterization equipment, such as XRD, SEM, TEM, EPMA, etc.;
- Experience in using GSAS or GSASII, FullProf, PDFgui and other neutron data analysis software is preferred.
- Strong English communication and writing skills.
- Experience in the operation and use of neutron sources and synchrotron radiation devices is preferred.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.25. Researcher – Material Preparation Characterization Methodology

Major Duties/Responsibilities:

1. Undertake methodological research on the synthesis of organic polymers/amphoteric molecules or the preparation of functional materials;
2. Undertake the construction of the experimental support deuterium generation platform and the research work of characterization and testing methodology;
3. Participate in the R&D and testing of functional plug-ins for characterization and testing equipment;
4. Responsible for the research, assembly, commissioning, operation and management of laboratory equipment and facilities.

Basic Qualifications:

- Ph.D. in Organic Chemistry, Materials Physics and Chemistry, Polymer Physics, with postdoctoral or special research assistant experience;
- Experience in organic synthesis;
- Proficient in the use of a variety of characterization testing equipment and its analysis software;
- Strong English communication and writing skills are preferred.

OR

Ph.D. graduates are eligible to apply for this corresponding postdoctoral position.

No.26. Researcher – Neutron Data Analysis

Major Duties/Responsibilities:

1. Undertake the research and development of CSNS-II neutron data protocol;
2. Carry out the development of analysis software;
3. Undertake the research and development of machine learning applications;
4. Participate in the daily work of the data analysis team.

Basic Qualifications:

- Ph.D., with postdoctoral or special research assistant experience;
- Professional background in neutron scattering, synchrotron radiation, and condensed matter physics;
- Familiar with Python, C++ and other programming languages and neural network frameworks such as Pytorch;
- Experience in neutron scattering is preferred
- Strong English communication and writing skills.

No.27. Researcher – Single Crystal Diffraction Spectrometer

Major Duties/Responsibilities:

1. Undertake the design and construction of single crystal diffraction neutron spectrometer;
2. Participate in the operation and maintenance of single crystal diffraction neutron spectrometer;
3. Support users to complete relevant experiments, develop potential users, and promote the application of spectrometers;
4. Carry out research on scattering methods and applications based on single crystal diffraction neutron spectrometer;
5. Carry out research work based on other spectrometers of CSNS.

Basic Qualifications:

- Ph.D. in Condensed Matter Physics, Materials Physics and Chemistry, Crystallography, Structural Biology, with postdoctoral or special research assistant experience;
- Professional background in X-ray or neutron scattering technology;
- Proficient in the use of structural analysis and refinement software, such as Fullprof, Jana, etc.;
- Experience in X-ray or neutron single crystal diffraction (or working in neutron sources at home and abroad) is preferred;
- Strong English communication and writing skills.
- Be proficient in using python, Matlab and other computer languages for scientific computing
- Have used the neutron spectrometer simulation software MCSTAS (or have a strong willingness to learn) is preferred.

No.28. Researcher – Experimental Control

Overview:

The main goal of this position is to undertake relevant business of experimental control on instruments and target station. Activities include upgradation and maintenance of control system on instruments and target station, such as software/hardware development for the experiment control, engineer design and deployment on instruments and target station control system, device installation and commissioning, field work of operation and maintenance.

Major Duties/Responsibilities:

1. Undertake the task of target station spectrometer equipment control;
2. Participate in the upgrade and maintenance of the target station control system
3. Participate in the development and implementation of the spectrometer experimental control system, and be responsible for related software development, hardware debugging, equipment installation and operation and maintenance

Basic Qualifications:

- Ph.D., with professional background in nuclear technology;
- Experience in system software and hardware development;
- Be able to use Linux system, python and other programming languages;
- Strong English communication and writing skills.

No.29. Postdoctoral Researcher – Target Key Material Development

Major Duties/Responsibilities:

1. Undertake the research and development of key materials for high-power targets;
2. Undertake the testing and research of target materials;
3. Participate in the development of high-power targets.

Basic Qualifications:

- Ph.D., with professional background in materials or nuclear technology and application;
- Proficient in the use of material research and analysis software;
- Research background in nuclear materials, dissimilar metal welding and simulation research is preferred;
- Strong English communication and writing skills.

No.30. Postdoctoral Researcher – Sample Environment Development

Major Duties/Responsibilities:

1. Undertake the sample environment design optimization, assembly and debugging and experimental testing of key R&D projects;
2. Participate in the design, development, assembly and commissioning of CSNS-II sample environmental equipment (high temperature and high pressure, etc.);
3. Participate in the design and development of sample environments related to user needs such as electric field and optical coupling;
4. Participate in the collation and declaration of sample environment-related projects.

Basic Qualifications:

- Ph.D., with research background in high and low temperature/high pressure/superconductivity/soft matter and other related topics;
- Proficient in the use of 3D design and finite element analysis software;
- Experience in X-ray or neutron scattering or sample environment related research is preferred;
- Strong English communication and writing skills.

No.31. Postdoctoral Researcher – Operation of Atmospheric Neutron Instrument

Major Duties/Responsibilities:

1. Undertake research work on neutrons and nuclear data measurement of Atmospheric Neutron Instrument;
2. Participate in the operation of the atmospheric spectrometer.

Basic Qualifications:

- Ph.D., with a professional background in nuclear physics;
- Proficient in the use of MCNP/Geant and other related software;
- Experience in neutron detection, nuclear electronics is preferred;
- Strong English communication and writing skills.

No.32. Postdoctoral Researcher – Small Angle Neutron Magnetic Scattering

Major Duties/Responsibilities:

1. Undertake the preparation and characterization of magnetoelastic alloys;
2. Undertake in-situ small-angle neutron magnetic scattering experiments and data analysis and micromagnetic simulation;
3. Participate in the operation of small angle spectrometer and user experiments.

Basic Qualifications:

- Ph.D. students with a background in metal materials or magnetism;
- Proficient in the use of micromagnetic simulation software;
- Experience in large-scale scientific device experiment and data analysis is preferred;
- Strong English communication and writing skills.

No.33. Postdoctoral Researcher – Material research in Engineering Materials Diffraction Instrument

Major Duties/Responsibilities:

1. Use MTS stretching machine to study the mechanical behavior of pearlitic steel.
2. Perform in-situ neutron and synchrotron radiation experiments to determine the evolution of residual stresses (interphase stresses);
3. Present progress and results at national and international conferences and seminars;
4. Measure, calculate and analyze the interphase stress in the plastic deformation of multiphase polycrystalline materials;
5. Construct the deformation mechanism of metal materials by using finite element simulation and crystal plasticity model.

Basic Qualifications:

- Ph.D. in materials science, engineering, or related field;
- Have practical experience in MTS stretching machine;
- Have experience in X-ray diffraction and Rietveld analysis;
- Master the finite element analysis software, and use the self-consistent model to analyze the plastic deformation mechanism of metal.

No.34. Postdoctoral Researcher – Technology and Application of High-Resolution Neutron Diffraction Spectrometer

Major Duties/Responsibilities:

1. Participate in the operation of high-resolution neutron diffraction spectrometer;
2. Use neutron scattering, muon spin oscillation, synchrotron radiation and other means to study the physical properties of materials.

Basic Qualifications:

- Ph.D., with a professional background in physics, chemistry or materials;
- Experience in neutron scattering experiment is preferred;
- Strong English communication and writing skills.

No.35. Postdoctoral Researcher – Science Data Security

Major Duties/Responsibilities:

1. Responsible for the security management of documents, and solve the problem of document transmission security through technical means;
2. Responsible for the construction of CSNS-II data security SOC platform, including the development of data security governance and traceability, security data analysis and other systems.

Basic Qualifications:

- Ph.D. or above in Computer Science and Technology or Materials Science and Engineering;
- Experience in blockchain, privacy computing, and data security system development is preferred;
- Background in data processing and data management for neutron/photon science experiments is preferred;
- Familiar with Python, Java, Shell and other programming languages;
- Strong communication and writing skills in Chinese and English.

No.36. Postdoctoral Researcher – Artificial Intelligence Application

Major Duties/Responsibilities:

1. Participate in the development of intelligent radiation safety systems, including the optimization of radiation shielding software, automatic identification of neutron dose tablets, etc.;
2. Participate in the development of digital laboratory systems, including the development of systems such as intelligent management of extreme sample environment, environmental data management and fusion of extreme samples.

Basic Qualifications:

- Ph.D. or above in Computer Science and Technology or Materials Science and Engineering;
- Experience in blockchain, privacy computing, and data security system development is preferred;
- Background in data processing and data management for neutron/photon science experiments is preferred;
- Familiar with Python, Java, Shell and other programming languages;
- Strong communication and writing skills in Chinese and English.

No.37. Postdoctoral Researcher – Detector Development

Major Duties/Responsibilities:

1. Undertake the R&D of multi-blade detector/GEM neutron detection/scintillator neutron detector/neutron imaging detector;
2. Undertake the development, assembly, commissioning, operation and maintenance of reflectance spectrometer detector upgrade equipment/liquid reflectance detector/single crystal diffractometer detector equipment;
3. Participate in the R&D of other detectors of neutron spectrometer.

Basic Qualifications:

- Ph.D. in neutron detector R&D;
- Proficient in the use of detector simulation and analysis software;
- Experience in the design of multi-blade detector/GEM neutron detection/scintillator neutron detector/neutron imaging detector is preferred;
- Strong English communication and writing skills.

No.38. Postdoctoral Researcher –Neutron Imaging Instrument Research

Major Duties/Responsibilities:

1. Undertake the structural characterization of structural materials/energy materials;
2. Undertake in-situ neutron scattering experimental research;
3. Undertake performance research on structural materials/energy materials;
4. Participate in the operation of the neutron imaging instrument.

Basic Qualifications:

- Ph.D. in materials, physics, metals, etc.;
- Experience in XRD, electron microscopy, mechanical property testing, etc. is preferred;
- Have team spirit;
- Strong English communication and writing skills.

No.39. Postdoctoral Researcher – Deuterium Methodology Research

Major Duties/Responsibilities:

1. Undertake chemical/biological deuteration methodology research and synthesis preparation;
2. Undertake the construction of chemical/biological deuteration experimental platform;
3. Participate in the pre-research and development of chemical/biological deuteration devices/equipment;
4. Participate in domestic/international neutron user contact.

Basic Qualifications:

- Ph.D. students with professional background in organic chemistry and analytical chemistry research;
- Proficient in using a variety of identification, separation and purification equipment and data analysis software is preferred;
- Experience in organic synthesis of organic molecules and amphoteric molecule synthesis is preferred;
- Proficient in English writing and communication is preferred.