Postdoctoral Fellowship Opportunities in Neutrino Physics, Dark Matter and Detector Development – 2027

University of Warwick | Department of Physics

Host: Dr Xianguo Lu, Associate Professor

Research programmes: JUNO | PandaX-20T | WarTPC

About the Opportunities

We invite expressions of interest from talented and ambitious early-career researchers wishing to develop independent research programmes at the University of Warwick through prestigious postdoctoral fellowships in 2027.

Our research combines precision measurements in major international neutrino and dark matter experiments with the development of new detector technologies. We offer opportunities ranging from **physics analysis with real experimental data to hands-on detector R&D**, supported by established collaborations, experimental facilities and expertise.

We particularly welcome candidates with strong research records, scientific initiative and original ideas who wish to establish their own research directions.

Research Programmes

JUNO: Precision Neutrino Physics with Real Data

The Jiangmen Underground Neutrino Observatory (JUNO) began data taking in August 2025 and published its first precision neutrino oscillation results in *Nature* in June 2026.

Our group works on atmospheric neutrinos, neutrino interactions and event-generator development, including leadership of the JUNO GANYMEDE working group. Opportunities include original measurements of neutrino oscillations and interactions, studies of nuclear effects, and rare-process searches such as proton decay.

With JUNO now taking data, fellows can pursue new physics analyses and contribute to a rapidly developing experimental programme.

PandaX-20T: Dark Matter and Rare-Event Physics

PandaX-20T is a next-generation liquid-xenon experiment, with construction targeted for completion in 2027, followed by installation and commissioning at the China Jinping Underground Laboratory.

Research opportunities include rare-event analysis, neutrino-induced backgrounds, detector-response studies and the development of new analysis techniques.

Fellows can help develop new physics analyses for a major next-generation experiment, exploring the growing interface between dark matter searches and neutrino measurements.

WarTPC: Active-Target Gas TPCs and Advanced Detector Development

WarTPC is an active-target gas TPC platform developed at Warwick, combining THGEMs with Timepix3 optical readout.

Research opportunities include hydrogen-rich gas targets for future precision neutrino interaction measurements, novel particle-tracking technologies and the development of nuclear-reaction measurement techniques.

WarTPC offers hands-on opportunities to develop and test new detector technologies, combining instrumentation, experimental measurements, simulation and reconstruction.

Fellowship Opportunities – 2027

1. Royal Commission for the Exhibition of 1851 Research Fellowships

Duration: Normally 3 years.

Funding: Full payroll costs for employed fellows (or an alternative stipend arrangement), plus £10,000 annually for research expenses.

Eligibility: Open to all nationalities. PhD completed before the fellowship starts; normally no more than 2.5 years of postdoctoral experience by 31 January 2027. Applicants should normally move from their PhD institution, with additional mobility requirements and exceptions governed by the scheme rules.

Deadline: 20 January 2027, 12:00 GMT.

Institutional approval, including a Head of Department acceptance letter, is required.

https://royalcommission1851.org/fellowships/research-fellowships

2. Royal Society Newton International Fellowships

Duration: 2 years.

Funding: Up to £280,000 under the latest published rules, covering eligible salary, research and institutional costs.

Eligibility: Applicants must be based outside the UK, normally must not hold UK citizenship, and must satisfy additional UK residence and mobility requirements. PhD awarded or defended by the deadline; no more than five years of eligible postdoctoral experience.

Additional K C Wong International Fellowships may be available for eligible applicants from China through the same competition.

Application deadline: Expected March 2027, subject to confirmation by the Royal Society. University internal selection procedures may take place earlier. Under the latest published rules, each UK academic sponsor may support only one application per round.

https://royalsociety.org/grants/newton-international/

How to Apply

Interested candidates are strongly encouraged to contact Dr Xianguo Lu at the earliest opportunity, well ahead of the anticipated fellowship deadlines, to allow sufficient time for Warwick's internal selection and approval procedures.

Initial enquiries should include a CV with publications, the PhD completion date, and a brief description of research interests or potential project ideas. A full research proposal is not required at this stage.

We welcome original ideas that complement our research activities and offer opportunities for scientific independence and career development.

Both fellowships are highly competitive. Official eligibility, funding rules and deadlines take precedence over this notice.

Contact

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