

Job Title Experimental Quantum Optics and Single-Photon Optics Postdoc
Location Los Alamos National Laboratory, Los Alamos, NM, USA
Organization Name ISR-2/Space and Remote Sensing

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For questions: Rebecca Holmes – rmholmes@lanl.gov

What You Will Do

The Space and Remote Sensing group (ISR-2) in the Intelligence and Space Research division (ISR) at Los Alamos National Laboratory develops and applies remote sensing instrumentation to problems of national security and related sciences (space.lanl.gov). On a typical day, our scientists are testing new single-photon cameras, developing new data analysis algorithms, designing instruments for NASA missions to Mars or Europa, building small satellites, operating remote telescopes, doing field experiments, and collaborating with other teams across the Laboratory and around the world. Applications of our work include space-based nuclear detonation detection, space situational awareness, airborne remote sensing, nuclear proliferation detection, atmospheric science, climatology, lightning science, ionospheric physics, planetary science, and astrophysics. We also pursue new ideas in technologies and applications related to our mission.

As a postdoctoral researcher, you will work as part of a multi-disciplinary team in a collaborative, technical research environment. Your skills will be applied to specific project goals with guidance from senior staff. In particular, you will contribute to experimental quantum optics and single-photon optics research in collaborative projects between ISR-2 and other Laboratory groups. Research opportunities may include quantum bioimaging with entangled photons, resources for optical quantum communication such as quantum memories, new interferometric measurement techniques, and applications of high-time-resolution single-photon imaging. You will bring valuable skills, expertise, and perspective to our team—but we also expect you to expand your skillset, learning new things and becoming an expert in new areas. Your curiosity and ability to quickly pick up new things is as important as what you already know.

Our postdocs are key collaborators and colleagues. You will have the opportunity to travel (subject to COVID-19 restrictions), present research at conferences, and write publications. The LANL Postdoctoral Program

is a pipeline for hiring technical staff at the Laboratory, many of whom first joined LANL as postdocs.

What You Need

Minimum Job Requirements:

Research & Collaboration: Demonstrated ability to conduct experimental research, both independently and on teams. Ability and desire to learn new skills and become an expert in new areas of interest.

Communication: Must have a high standard for written and oral communication, as well as interpersonal communication (“soft skills”).

Education/Experience: A Ph.D. in a field relevant to experimental optics, completed within the past 5 years or soon to be completed. Examples could include (but are not limited to) physics, astronomy, or electrical engineering.

Desired Qualifications:

Technical Experience or Expertise

Experience or expertise in one or more of the following areas:

- Tabletop quantum optics experiments, especially single-photon sources and entangled photon sources
- Optical quantum information applications, e.g. quantum communication or computing
- Single-photon detectors and analysis of single-photon data
- Data analysis in Python or other programming languages
- Space topics or applications, e.g. satellites, orbital mechanics, astronomy, atmospheric science, or space science

This position does not require a security clearance, however candidates who have the ability to obtain a DOE “Q” clearance will have more opportunities. To obtain a clearance, an individual must be at least 18 years of age, and U.S. citizenship is required except in very limited circumstances. See [DOE Order 472.2](#) for additional information.

Note to Applicants:

Along with your CV and transcript, please include a cover letter. The purpose of this letter is (1) to explain how you meet each of the minimum job requirements and any of the desired qualifications (make the hiring committee’s job easy), and (2) to describe your research interests (what are you excited about? what work do you like to do?). A conversational tone is appropriate.

Additional Details

New-Employment Drug Test: The Laboratory requires successful applicants to complete a new-employment drug test and maintains a substance abuse policy that includes random drug testing.

Equal Opportunity: Los Alamos National Laboratory is an equal opportunity employer and supports a diverse and inclusive workforce. All employment practices are based on qualification and merit, without regard to race, color, national origin, ancestry, religion, age, sex, gender identity, sexual orientation or preference, marital status or spousal affiliation, physical or mental disability, medical conditions, pregnancy, status as a protected veteran, genetic information, or citizenship within the limits imposed by federal laws and regulations. The Laboratory is also committed to making our workplace accessible to individuals with disabilities and will provide reasonable accommodations, upon request, for individuals to participate in the application and hiring process. To request such an accommodation, please send an email to applyhelp@lanl.gov or call 1-505-665-4444 option 1.

Where You Will Work

Located in beautiful northern New Mexico, Los Alamos National Laboratory (LANL) is a multidisciplinary research institution engaged in strategic science on behalf of national security. Our generous benefits package includes:

- PPO or High Deductible medical insurance with the same large nationwide network
- Dental and vision insurance
- Free basic life and disability insurance
- Paid maternity and parental leave
- Award-winning 401(k) (6% matching plus 3.5% annually)
- Learning opportunities and tuition assistance
- Flexible schedules and time off (paid sick, vacation, and holidays)
- Onsite gyms and wellness programs
- Extensive relocation packages (outside a 50 mile radius)