Sandia National Laboratories

Sandia CINT Summer Research Program



PROVIDING WORLD-CLASS RESEARCH EXPERIENCE

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ENHANCING RESEARCH AND CAREER DEVELOPMENT

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- This program fosters long-term scientific collaborations between CINT scientists, faculty and students.

YOUR OPPORTUNITY

January 18, 2022

11 a.m.- 12:15 p.m. MST

Join Sandia for an Information Session on the 2022 CINT Summer Research Program

Microsoft TEAMS meeting

Contact the Academic Programs team:
AcademicPrograms@sandia.gov

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. (SAND2021-15758 HR)

U.S. DEPARTMENT OF ENERGY NNSA

Sandia National Laboratories

CINT Summer Research Program Overview & Process

November 3, 2021

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Program Overview

The CINT Summer Research Program is an 8-week long research experience for both undergraduate and graduate students. The students, hired as university employees and contractors to Sandia National Labs, are paired with a CINT scientist who will determine the students research projects, mentor the students throughout the eight weeks, and assist them in their proposals and final presentations. The students work either alone or in teams on their specific research projects, and are offered opportunities to tour Sandia facilities and participate in various intern and recruiting activities throughout the summer at Sandia. It is Sandia's intent that the students will receive enough exposure to Sandia's offerings and culture that they will pursue either full-time employment with Sandia after they complete their academic program, pursue a summer or year-round internship, or participate in the program for subsequent years. To date, Sandia has supported 19 total students over the summers of 2020 and 2021, and will support approximately 15 students for the summer of 2022. Additionally, Sandia aims to develop new and sustaining collaborations with the students' faculty advisors to pursue research partnerships.

The program operates with three main objectives:

- Foster long-term scientific collaborations between CINT and University Partnership schools
- Encourage student to pursue their curriculum in nanoscience
- Bring new users to CINT

This year CINT will provide a list of topics with a brief description of the research objectives and tasks. Internally we will also track how each project is tied to an existing LDRD project and identify the Milestone(s) associated with the work accomplished by the student.

About CINT (Center for Integrated Nanotechnologies):

From cint.lanl.gov:

Vision

Our mission is to provide scientific understanding underlying nanoscale integration through the assembly of diverse materials across multiple length scales, with the ultimate goal of designing and achieving new material properties and functionalities. You can read more about our vision in our strategic plan, CINT 2026 (pdf).

Objective

The distinguishing characteristic of CINT is its emphasis on exploring the path from scientific discovery to the integration of nanostructures into the micro and macro worlds. This pathway involves the experimental and theoretical exploration of behavior, the development of a wide variety of synthesis and processing approaches, and an understanding of new performance regimes, testing design, and integration of nanoscale materials and structures. Integration itself is key to the exploitation of nanomaterials, and the scientific challenges that it poses are at the heart of CINT's mission.

Outreach

Our outreach activities will bring together university faculty, students, other national laboratory scientists, and industrial researchers to propose, design, and explore the integration of new nanoscale materials into novel architectures and microsystems.

Future

The influx of personnel and new ideas will lead to close partnerships among the participants and will add greatly to the excitement of doing research at this new frontier. CINT will work closely with other DOE nanoscience centers, with universities, and with industrial partners to explore relationships between nanoscale science and integrated functionality.

Process: Funding, Recruiting, Logistics and Management

Funding

To form a mutually beneficial partnership, Sandia expects a 100% cost match from the university. Sandia will fund the university $10k per student to be used for faculty salary, student reimbursement for travel and per diem, or other functions as the university determines. The university is expected to then fund the students for $10k over the 8 weeks, to include salary, and lodging/ travel reimbursement.

Sandia will determine an adequate budget based on each university's available funding. Once an informal agreement is made between Sandia and the university, Sandia will initiate the contracting process for the amount of $10k/student participant. Funding will be sent to the participating faculty lead, rather than the students.

Recruiting

Sandia begins recruiting for students in the Fall semester. Sandia research projects are evaluated for mentor capacity, research needs, and level of support. Universities will receive this list of projects and intended student major/ field and level (Undergraduate/ Masters/ PhD). Because the students will be university employees, recruitment and selection are the university's discretion and responsibility. Sandia will provide support to the universities during the selection process, if needed.

Logistics

Upon selection, students will work with their faculty advisor and intended CINT mentor to submit a CINT user proposal (guidance below). Students will receive communications from either the CINT Technical Lead, their intended CINT Mentor, or the CINT Program Operations Lead regarding requirements, necessary forms, etc.

Students will live in Albuquerque, NM during the 8-week program, beginning the Tuesday following Memorial Day, and commencing the second-to last Friday in July. Students are expected to find and book their own housing (while following university reimbursement guidelines and processes), but are encouraged to cohabitate to further enhance the cohort experience.

Program Management (internal only)

CINT Summer Research Program projects will be funded from the University Partnerships baseline LDRD funding. After projects are selected, PIs will submit a one paragraph summary to the LDRD Office outlining the students' intended support and outcomes. The LDRD Office has added "CINT" as a focus area, which allows for more efficient program management and financial tracking. PIs must be conscious of the 40% threshold for university subcontracts on LDRD projects and must plan accordingly.

All Purchase Requisitions will be initiated and placed by 1800 financial support, with 1900 staff supporting where needed.

Expectations

University

The pre-determined total cost per student participating in the program is $20k. Participating universities are expected to contribute a total of $10k towards each student. For more details, view the Cost Breakdown. In order for the students to join Sandia as CINT users, the students must be employed by the universities.

Participating universities are expected to identify a contracting point of contact, provide requested information in a timely manner, and abide by Sandia's contracting policies and guideline in order to ensure an effective contract placement process.

As mentioned above, it is expected that the university will identify one or multiple faculty members to coordinate the program on the university's end, and maintain communication with Sandia Program Leads. This faculty member will lead the recruitment and selection of students, partner with the students to develop and submit their CINT User Proposals, and ensure student success throughout the program.

Sandia

Sandia will assign each student to a CINT scientist, who will manage and assign their work/ research and provide mentorship and guidance. Additionally, Sandia will connect students with staff from the University Partnerships office who can address concerns, facilitate contact with university program leads, discuss career development goals, and options for employment at Sandia.

Students also have the opportunity to participate in various tours of Sandia facilities throughout he summer to provide them with a better understanding of Sandia's reach and mission. Sandia's Summer Internship Program hosts various events throughout the summer as well, of which CINT students are invited and encouraged to participate in.

Students

As mentioned above, each student is required to submit a joint CINT User Proposal with their faculty advisor/ lead prior to the initiation of their research at CINT. The proposal includes general project information, which will be provided in partnership with the paired CINT scientist. The proposal is expected to address project goals, specifically the impact of the project and the intended collaboration with CINT.

Proposal template linked here.

In the final week of the program, the students will each present summaries of their research to each other, various Sandia employees and leadership, and faculty members from participating universities in a Mini Symposium.

After the 8 weeks have concluded, CINT scientists and students will produce a SAND report documenting their project progress throughout the summer, not to exceed 10 pages. This report will detail scope of the work performed, results, and potential follow-on.

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