

January 22, 2019

## Undergraduate Research Mentor **Alan Denton, Ph.D.** Physics

### Describe your research interests / programs:

My research interests are in theoretical and computational materials physics. We combine mathematical modeling with computer simulation methods to explore structural properties and thermodynamic phase behavior of soft materials. Systems of interest include colloidal suspensions and polymeric gels, of which many consumer products are composed, as well as synthetic nanomaterials. Our research aims to understand and predict how macromolecules, such as biopolymers and microgels, respond to crowded environments and self-assemble into ordered structures. The long-term goal is to guide experiments and facilitate design of new materials. Aside from fundamental interest, the research is motivated by potential practical applications, including drug delivery, biosensing, and water filtration.



**How have undergraduates been involved in your research?**

Over the past few years, undergraduate students working in my research group have contributed to software development and computer simulations. They have developed Monte Carlo and molecular dynamics codes, run simulations, and analyzed data. Some students took the initiative to get involved as early as their freshman year. Many have earned course credit and some have been supported as research assistants during the summer. Most undergraduates in the group base their senior capstone project on some aspect of their research. In many cases, the research leads to conference presentations and publications, which can strengthen applications to graduate programs and jobs in industry. Over the past four years, seven undergraduate students in the group have appeared as first author on eight peer-reviewed journal articles.

**What is the best thing about being an undergraduate research mentor?**

Mentoring students stimulates my research by challenging me to formulate new projects, delve into new problems, and explain the broader impacts of the work. Undergraduate students often bring tremendous energy and curiosity and can contribute fresh perspectives that enrich group discussions. As we work together to solve problems, we inevitably learn from and support one another.

[Learn more about Dr. Denton's experiences and mentoring advice >>.](#)

# NDSU EXPLORE

UNDERGRADUATE EXCELLENCE IN RESEARCH AND CREATIVE ACTIVITY

**SAVE THE DATE**

**APRIL 11, 2019**

Registration will open in Spring semester



## Budgeting Tip: Human Subject Incentive Payment vs. Participant Support Costs

When building your budget, remember there is a difference between a “human subject incentive payment” and a “participant support cost”. A

**human subject incentive** is a nominal payment given to an individual as compensation for their involvement in a research study (e.g. \$10/hour for completion of a survey). **Participant support costs** are payments to or on the behalf of individuals participating in a training project, conference or workshop and includes expenses such as stipends, travel, registration fees and subsistence. Participants are non-NDSU employees that are the recipients of a service or training rather than the provider of the service or training.

Additional guidance can be found on the Sponsored Programs Administration [Budget Development](#) webpage.

## Do You Conduct Human Subjects Research? Regulatory Changes took effect January 21, 2019

Changes to the human subjects regulatory framework known as the Common Rule have now taken effect after a yearlong delay. The revised rule includes new and expanded exemption categories, additional required elements of consent for non-exempt research, and changes to the continuing review requirements for research qualifying for expedited review under the Common Rule.

To comply with the revised requirements, Protocol Applications have been updated and are available on the IRB [Forms page](#). Current protocol application materials must be utilized for any new protocol submissions.

More information on the revised rule can be found on the IRB website:

- [Approval Criteria](#)
- [Consent Resources](#)
- [Exemption Categories](#)

Please contact Kristy Shirley at 701.231.8995 with any questions.



### Pivot is Moving to a New URL

On March 1, 2019, Pivot is moving to <https://pivot.proquest.com> and the current Pivot URL, <https://pivot.cos.com> will be discontinued. Traffic to cos.com **will not** automatically redirect to the new URL, including any links you have saved.

This is a change in address only: all data remains, and the user

experience and functionality are unchanged.

**Pivot users should update saved links to reflect the new address.**

## **Collaboration Requests Due January 29, 2019: Sanford Health - NDSU Collaborative Research Seed Grants**

To better facilitate collaboration between NDSU and Sanford Health collaborators, proposers are requested to submit a short description of a possible proposal to [ndsu.businessdev@ndsu.edu](mailto:ndsu.businessdev@ndsu.edu) by January 29, 2019. Additional information about the seed grant program and the collaboration request can be found on the [program's webpage](#).

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Looking for  
Collaborators?  
Visit the  
[NDSU Scholars  
Database](#)

In Search of  
Equipment?  
Check the  
[NDSU Equipment  
Database](#)



Need to update your profile?  
Click [here](#) to learn how!

## **DHHS Administration for Community Living: Rehabilitation Engineering Research Centers**

The purpose of the Rehabilitation Engineering Research Centers ([RERC](#)) program is to fund research and development that leads to rehabilitation practices and services that improve the health, and the physical, cognitive, sensory, and communication abilities, of individuals with a wide range of disabling conditions. Awardees conduct advanced engineering research on and development of innovative technologies that are designed to solve particular rehabilitation problems or to remove environmental barriers. RERCs also demonstrate and evaluate such technologies, facilitate service delivery system changes, stimulate the production and distribution of new technologies and equipment in the private sector, and provide training opportunities. Awards are normally made for a five-year period.

*Application deadline: March 18, 2019*



## **DOE: Quantum Information Science**

The Department of Energy (DOE) Office of Science - Basic Energy Sciences (BES) announces its interest in receiving applications from single investigators or small groups (up to \$500K per year) and from large teams (over \$500K per year) for support of experimental and theoretical efforts to advance materials and chemical sciences research for quantum information science (QIS) ([DE-FOA-0002054](#)). Large teams must have multiple investigators and may have

multiple institutions. This funding opportunity supports fundamental research for public benefit in materials and chemical sciences to advance understanding of quantum phenomena in systems that could be used for QIS, and the use of quantum computing in chemical and materials sciences research. Applications must focus on the Priority Research Opportunities for experimental and theoretical research identified in the BES Roundtable Reports:

- [Basic Energy Sciences Roundtable on Opportunities for Quantum Computing in Chemical and Materials Sciences](#), or
- [Basic Energy Sciences Roundtable on Opportunities for Basic Research for Next-Generation Quantum Systems](#).

*Application deadline: May 3, 2019*

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## **NIH: Summer Research Education Experience Program (R25)**

The NIH Summer Research Education Experience Program ([R25 / PAR-19-164](#)) supports research education activities in the mission areas of the NIH. The over-arching goal of this R25 program is to support educational activities that foster a better understanding of biomedical, behavioral and clinical research and its implications. To accomplish this goal, this funding opportunity announcement will support creative educational activities with a primary focus on research experiences for high school or undergraduate students or science teachers during the summer academic break. The proposed program needs to fit within the mission of the participating institute or center that the application is being submitted to and should not have a general STEM focus. Each



participating institute has their own priority focus areas. A project period of up to five years may be requested. Although the size of award may vary with the scope of the Summer Research Program proposed, budgets cannot exceed \$100,000 direct costs per year.

*Standard deadlines apply: January 25, May 25, September 25*



## **NSF: Improving Undergrad STEM Ed (IUSE:EHR)**

The National Science Foundation (NSF) Improving Undergrad STEM Ed ([IUSE:EHR](#)) program is a core NSF undergraduate STEM education program that seeks to improve the effectiveness of undergraduate STEM education for both majors and non-majors. NSF places high value on educating students to be leaders and innovators in emerging and rapidly changing STEM fields as well as educating a scientifically literate populace. In pursuit of this goal, IUSE: EHR supports projects that have the potential to improve student learning in STEM through development of new curricular materials and methods of instruction, and development of new assessment tools to measure student learning. In addition to innovative work at the frontier of STEM education, this program also encourages replications of research studies at different types of institutions and with different student bodies to produce deeper knowledge about the effectiveness and transferability of findings.

IUSE: EHR also seeks to support projects that have high potential for broader societal impacts, including improved diversity of students and instructors participating in STEM education, professional development for instructors to ensure adoption of new and effective pedagogical techniques that meet the

changing needs of students, and projects that promote institutional partnerships for collaborative research and development. The program features two tracks:

1. Engaged Student Learning and
2. Institutional and Community Transformation.

In both tracks, awards are for up to \$300K, for up to three years. **Currently, proposals are being accepted in the Exploration and Design Tier for either of these two tracks.** The program has prepared a list of Frequently Asked Questions, available at [IUSE FAQs](#).

*Application submission window: October 1, 2018 – September 30, 2019*

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## **Sanford Health - NDSU Collaborative Research Seed Grant Program**

The fifth Sanford Health - NDSU Collaborative Research Seed Grant program's Request for Applications (RFA) has been released. Proposals are to be submitted electronically to [NDSU.BusinessDev@ndsu.edu](mailto:NDSU.BusinessDev@ndsu.edu) by 5:00 PM on March 19, 2018. The full RFA and Application form can be downloaded from the [program's webpage](#).

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**To better facilitate collaboration between NDSU and Sanford Health collaborators, proposers are requested to submit a short description of a possible proposal by January 29th to [ndsu.businessdev@ndsu.edu](mailto:ndsu.businessdev@ndsu.edu). Additional information about the Collaboration Request can be found in the RFA or at the link above.**

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Questions regarding suitability of topic areas, collaborating with Sanford, or other program-related questions can be addressed by Business Development (231-6660 or [NDSU.businessdev@ndsu.edu](mailto:NDSU.businessdev@ndsu.edu)).

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## **Sigma Xi: Undergrad and Grad Student Grants in Aid of Research**

The [Sigma Xi Grants-in-Aid of Research](#) (GIAR) program has provided undergraduate and graduate students with valuable educational experiences since 1922. By encouraging close working relationships between students and mentors, the program promotes scientific excellence and achievement through hands-on learning. The program awards grants of up to \$1,000 to students from all areas of the sciences and engineering. Designated funds from the [National Academy of Sciences](#) allow for grants of up to \$5,000 for astronomy research and \$2,500 for vision related research. Students use the funding to pay for travel expenses to and from a research site, or for purchase of non-standard laboratory equipment necessary to complete a specific research project. [Ninety-seven students](#) who applied by the October 1, 2018, deadline learned last week that their proposals were accepted.

*Application deadline: March 15 and October 1 annually*

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## Proposal Budget and Budget Justification Questions

Sponsored Programs Administration (SPA) staff are available to assist with questions that may arise when preparing a proposal budget or a budget justification. Feel free to contact Cindy Eleson (231-5259) or Vicki Miller (231-8898), SPA Budget and Programs Officers, with any questions or to make a personal appointment to meet with them at the Sponsored Programs office located at 1735 Research Park Drive (Research 1 Building). We encourage you to check out the [SPA website](#) for additional assistance with your proposal preparation. We have a number of tools available including budget templates and guidance on assigning costs to the appropriate budget category. SPA staff are also available to present informational sessions for you and your colleagues on proposal and award modification topics. You can contact SPA at 231-8045, or via email at [NDSU.Research@ndsu.edu](mailto:NDSU.Research@ndsu.edu).



## January Issue of Research Development & Grant Writing News

The January issue of [\*Research Development and Grant Writing News\*](#) is now available to view. Use your NDSU login information to access this resource. Various topics are covered, including:

- Tips on Successful Foundation Funding
- Underlying Strategies for STEM Partnerships with Minority Serving Institutions
- Scheduling the Production of Your NSF CAREER Proposal
- To Revise, Re-Write, or Begin Anew?



## NDSU IACUC Rodent Training Series - Session 1

NDSU IACUC Rodent Training Series Session 1: Mouse Handling and Husbandry Basics will be offered on Thursday, January 31, from 3-4 PM in Van Es Room 107. This session will cover mouse handling, restraint, and various procedures (e.g. ear punching) as well as welfare and documentation requirements. The training is open to faculty, staff, and students. [Register](#) for the event today! Space is limited!



Have questions, ideas, or suggestions for the RCA Update?

[Contact Us](#)



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*The Office of Research and Creative Activity (RCA) sends weekly emails to NDSU faculty and staff to provide current information on various topics including funding opportunities, grant program changes, research resources, deadlines, notices, and training.*

*You are receiving this notification through the NDSU official employee listserv or sub-list. The official listserv refreshes after each pay period.*

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