Welcome to the Research and Creative Activity Update!
The Office of Research and Creative Activity wants to make sure you are provided with up-to-date information pertaining to research and scholarly activities and opportunities. Thus, to share information quickly rather than through multiple emails, we will continue to provide weekly updates for researchers, scholars and staff to keep up-to-date on grant program changes, deadlines, notices and training, with links to expand the information you may be interested in.

Thank you for your contributions to research and creative activity at NDSU.

These weekly email updates are archived on the [RCA Website](#).

**EVENTS**

- Fall 2016 NSF Grants Conference - Live Webcast
- Register Now for Upcoming Gear up for Grants Seminars
- NSF EPSCoR RII Track-4 – Informational Webinar

**NOTICES**

- NSF Dear Colleague Letter: FY 2017 INFEWS Funding Opportunity on Nitrogen, Phosphorus, and Water
- Cross Sectioning and Polishing Equipment
- The Electron Microscopy Center Core Facility Purchased New 3D Printer

Fall 2016 NSF Grants Conference – Live Webcast

The Fall 2016 NSF Grants Conference General Sessions will be webcast live to the research community on November 14-15, 2016. View these sessions to gain key insight into a wide range of current issues at NSF including the state of current funding, new and current policies and procedures, and pertinent administrative issues.

The sessions will be broadcast on November 14 and 15 in the Memorial Union Century Theater. Please feel free to come and go as you are able.

Check out the webcast agenda to plan which sessions you would like to attend. *Please note that agenda times are Eastern, not Central.*

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Register Now for Upcoming Gear up for Grants Seminars

Mark your calendars for these upcoming Gear up for Grants Seminars:

**Working with Industry**

*Tuesday, November 15, 2016 | 3-4:30pm | Memorial Union Hidatsa Room*

Register Now!

Research Results: Beyond Publishing – Intellectual Property, Licensing to Companies, Starting a Company
NSF EPSCoR RII Track-4 – Informational Webinar

NSF EPSCoR RII Track-4 provides opportunities for non-tenured investigators to further develop their individual research potential through extended collaborative visits to the nation’s premier private, governmental, or academic research centers. Through these visits, the EPSCoR Research Fellows will be able to learn new techniques, benefit from access to unique equipment and facilities, and shift their research toward transformative new directions. The experience gained through the fellowship is intended to provide a foundation for research collaborations that span the recipient’s entire career. These benefits to the Fellows are also expected to in turn enhance the research capacity of their institutions and jurisdictions. Full details for RII Track-4 are available in the solicitation, NSF 17-509.

Join EPSCoR Program Officers November 29 or November 30 at 2:00 p.m. EST for an informational webinar on EPSCoR’s RII Track-4 program. WebEx login instructions can be found here.

NSF Dear Colleague Letter: FY 2017 INFEWS Funding Opportunity on Nitrogen, Phosphorus, and Water

The National Science Foundation recently issued a Dear Colleague Letter (DCL) concerning a FY 2017 Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) investment area.

Through this DCL, issued by the Divisions of Chemistry (CHE) and Materials Research (DMR) in the Directorate for Mathematical and Physical Sciences and the Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET) in the Directorate for Engineering, the NSF aims to specifically focus on advancing knowledge of the nitrogen and phosphorus cycles; the production and use of fertilizers for food production; and the detection, separation, and reclamation/recycling of nitrogen- and phosphorus-containing species in and from complex aqueous environments.

Specifically, the 2017 topics of interest include innovative, fundamental research to:

1. advance catalytic methods for the reduction of dinitrogen to ammonia that permit reductions in the energy requirements for fertilizer production;
2. develop new sensing modalities that will lead to field-deployable, inexpensive, and environmentally and energetically sustainable sensors for real-time monitoring of nitrogen- or phosphorus-containing species as they move, via agricultural run-off, to other water systems; and
3. develop methods for the selective and efficient detection, sequestration/separation, and recycling of nitrogen and phosphorous species from water (For proposals submitted to CHE, proposals should focus on gaining an understanding of the supramolecular recognition and binding of environmentally-relevant nitrogen- and phosphorus-containing species.); and
4. develop new materials to optimize the availability of N and control the utilization of P while managing effluents within the context of sustainable energy and preservation of our natural resources.

For more information, read the full DCL on the NSF website.

Cross Sectioning and Polishing Equipment

Cross sectioning and polishing equipment is available for use in the Research 2 building. Cross sectioning and polishing
is the process of encasing a physically hard sample of some type of material in an epoxy resin or thermosetting polymer. Once hardened, the specimen is then cut in half followed by grinding and polishing. A finely detailed cross section of the sample can be used for studying metallurgy, physical makeup, damage, internal faults and other attributes not visible from the outside of the object. Cross sectioning and polishing is extremely handy when inspecting failed electronics. This process allows looking into a soldered joint or even inside an electronic part for failure mechanisms. The equipment used for this process consists of; a diamond saw for sawing or sectioning the sample, a polishing grinder, and a sample potting press. The grinding and polishing process may be done dry, wet, or with a diamond grit slurry to obtain a smooth highly visible surface of the sample to look at. This surface can be inspected with an optical microscope or a scanning electron microscope if extremely high resolution is required. For more information on how these tools can help with your research, contact Aaron Reinholz (1-5338 aaron.reinholz@ndsu.edu) or visit the Research Operations website at https://www.ndsu.edu/research/research_operations/.

The Electron Microscopy Center Core Facility Purchased New 3D Printer

The Electron Microscopy Center core facility has purchased a new 3D printer now available for general use on a fee basis.

The Formlabs Form 2 printer uses stereolithography technology, liquid resins polymerized by a precision laser, to produce exceptionally detailed models. Prints up to 145 x 145 x 175 mm (5.8 x 5.8 x 7 inches) are possible with layer resolution of 25-100 µm. The most common file-export types for 3D printing, .STL and .OBJ formats, are accepted. The printer’s PreForm software simplifies import and manipulation of digital files, automatically generating supports and optimizing print orientation, while permitting flexible user control. Several functional resin types are available. Stereolithography is an efficient way to produce prototypes or limited-run parts.

For an estimate of time and cost to print your model, contact the Electron Microscopy Center at 231-8234 or ndsu.em.center@ndsu.edu.