

**From:** Chemistry Community - All <CHEM-COMM@LISTSERV.NSF.GOV> on behalf of Berkowitz, David B. <dberkowi@NSF.GOV>  
**Sent:** Monday, March 01, 2021 9:32 PM  
**To:** CHEM-COMM@LISTSERV.NSF.GOV  
**Subject:** [EXTERNAL] The Latest from NSF-CHE

Greetings Chemistry Colleagues,

Here are upcoming activities and opportunities from the NSF Chemistry Division:

- 1) The **Virtual CHE Office Hour** on **March 5, 2021** will be a **Listening Session on Broadening Participation, Diversity, Inclusion, and Equity in Chemistry**. Guest hosts Miguel Garcia-Garibay of UCLA, Rigoberto Hernandez of Johns Hopkins University, and Kayunta Johnson-Winters of the University of Texas at Arlington will lead a community discussion on this important and timely topic area.

Register here <https://nsf.zoomgov.com/meeting/register/vJl5d-2urDggGadHnmAsAs9W17CmfRo-45o>. CHE invites our entire community to this listening session as we specifically invite those most affected by inequities in chemistry and related fields to add their voices to this conversation. We seek your input on areas of greatest concern where funding or other actions by the Division might have real, measurable, and sustainable impact in accelerating Broadening Participation, Diversity, Inclusion, and Equity in Chemistry.

For questions, please email to CHE Chemistry Information [cheminfo@nsf.gov](mailto:cheminfo@nsf.gov).

- 2) **NSF/CHE Early Career Investigator Workshop (May 17-18, 2021)**: (virtual, <http://www.nsfworkshop.org/>). Professors Kelly Chacon of Reed College and Steven Townsend of Vanderbilt University are organizing a workshop that seeks to provide new chemistry faculty with insight into the proposal writing and review process so that they can identify and develop strong research, education and outreach activities. The participants will engage in mock panels, research presentations, and other activities designed to provide them with a better understanding of how to put together a research plan that is ambitious, yet realistic and compelling. Broader impact criteria will also be discussed including educational activities, outreach, broadening participation and longer term application to societal problems. For additional information please check out the workshop website at <http://www.nsfworkshop.org/> or send an inquiry to [nsfworkshop2021@gmail.com](mailto:nsfworkshop2021@gmail.com).

Application submission window 03/08/21 - 03/29/21

**3) New NSF Solicitations and Funding Calls:**

- a) **Future Manufacturing (FM) (NSF 21-564, <https://www.nsf.gov/pubs/2021/nsf21564/nsf21564.htm>)**

The goal of this solicitation is to support fundamental research and education of a future workforce that will enable Future Manufacturing: manufacturing that either does not exist today or exists only at such small scales that it is not viable. Future Manufacturing will require the design and deployment of diverse new technologies for synthesis and

sensing, and new algorithms for manufacturing new materials, chemicals, devices, components and systems. It will require new advances in artificial intelligence and machine learning, new cyber infrastructure, new approaches for mathematical and computational modeling, new dynamics and control methodologies, new ways to integrate systems biology, synthetic biology and bioprocessing, and new ways to influence the economy, workforce, human behavior, and society.

**Full Proposal Deadline Date: May 14, 2021**

**b) Recently Issued NSF SBIR/STTR Solicitations:**

The NSF SBIR program focuses on transforming scientific discovery into products and services with commercial potential and/or societal benefit. Unlike fundamental or basic research activities that focus on scientific and engineering discovery itself, the NSF SBIR program supports the creation of opportunities to move fundamental science and engineering out of the lab and into the market or other use at scale, or startups and small businesses representing “deep technology ventures.”

• **Small Business Innovation Research (SBIR) Program Phase I Solicitation:**

<https://www.nsf.gov/pubs/2021/nsf21562/nsf21562.htm> and **Small Business Technology Transfer (STTR) Program Phase I** (<https://www.nsf.gov/pubs/2021/nsf21563/nsf21563.htm>)

**Submission Window Date(s)** (due by 5 p.m. submitter's local time):

February 12, 2021 - March 04, 2021

March 05, 2021 - June 03, 2021

June 04, 2021 - September 02, 2021

September 03, 2021 - December 02, 2021

Small businesses can submit a Project Pitch at any time. Small businesses that have been invited to submit a full proposal can submit a proposal based on that Project Pitch at any time during one of the submission windows listed above (up to one year).

• **Small Business Innovation Research Program Phase II (SBIR Phase II,**

<https://www.nsf.gov/pubs/2021/nsf21565/nsf21565.htm>) and **Small Business Technology Transfer Program Phase II (STTR Phase II,** <https://www.nsf.gov/pubs/2021/nsf21566/nsf21566.htm>)

**Submission Window Date(s)** (due by 5 p.m. submitter's local time):

February 16, 2021 - March 04, 2021

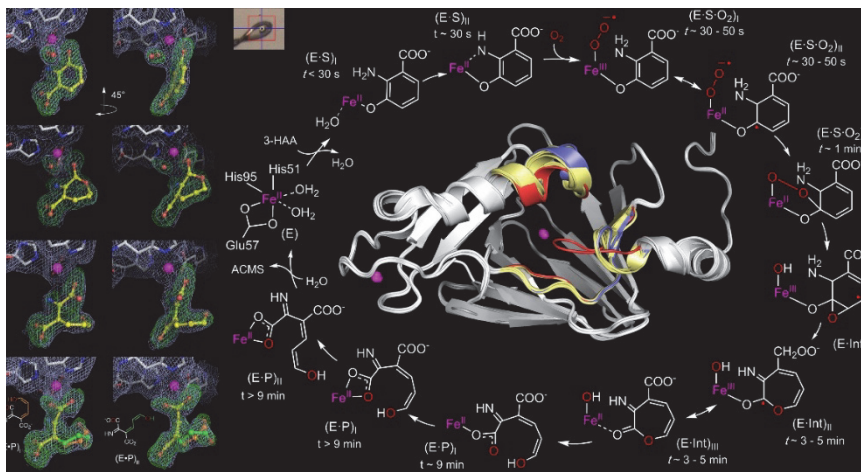
March 05, 2021 - June 03, 2021

June 04, 2021 - September 02, 2021

September 03, 2021 - December 02, 2021

**4) Research Highlight:**

***Observing 3-hydroxyanthranilate-3,4-dioxygenase in action through a crystalline lens***



The synthesis of quinolinic acid from tryptophan is a critical step in the *de novo* biosynthesis of nicotinamide adenine dinucleotide (NAD<sup>+</sup>) in mammals. **Dr. Aimin Liu and his group at U Texas-San Antonio** solved the missing piece of the information by investigating a dioxygenase that regulates quinolinic acid levels. The results from this project provide a comprehensive view of the dioxygenase mechanism by enabling step-by-step visualization of the catalytic cycle and the protein dynamics during catalysis. The results also reveal how the enzyme regulates

metabolic pathway product distributions, including the non-enzymatic product of biologically significant compounds. This knowledge will help to understand NAD<sup>+</sup> hemostasis, immune regulation, and oxygen activation and utilization. This project was funded by the Chemistry of Life Processes (CLP) Program in the Division of Chemistry, initially (**CHE-1623856** and **CHE-1808637**).

The Figure shows seven intermediate crystal structures of 3-hydroxyanthranilate-3,4-dioxygenase (HAO) that were determined during the *in crystallo* reaction; Figure credit: Aimin Liu and his group. This work was published in *PNAS*, **2020**, *117*, 19720-19730.

For more information about other on-going funding opportunities, please visit our division websites regularly at [https://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=137576&org=CHE](https://www.nsf.gov/news/news_summ.jsp?cntn_id=137576&org=CHE) for new solicitations and at [https://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=131983&org=CHE](https://www.nsf.gov/news/news_summ.jsp?cntn_id=131983&org=CHE) for on-going DCLs.

Be safe,

Dave Berkowitz

Division Director  
 Division of Chemistry  
 National Science Foundation

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