

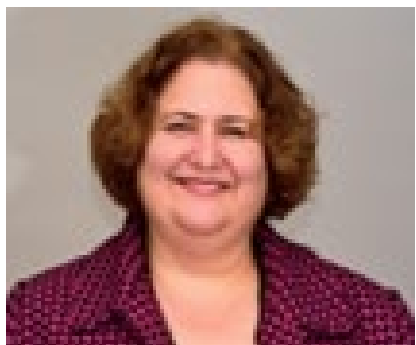
# Centers for Chemical Innovation (CCI) Solicitation: NSF 23-575

Division of Chemistry Office Hour  
May 19, 2023





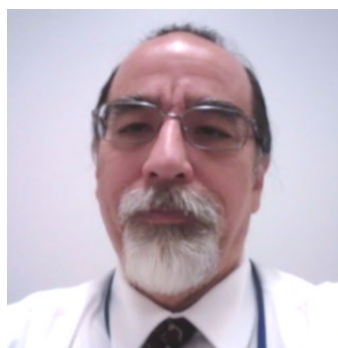
# Centers for Chemical Innovation Program Staff



**Katharine Covert**  
Program Lead



**Greg Collins**  
Program Director



**Colby A. Foss, Jr.**  
Program Director



**Richard Johnson**  
Expert (Part-time)  
Program Director



**Valerie Maizel**  
Program Specialist



# Centers for Chemical Innovations (CCI): Program Goals

- ❑ Address major, long-term basic chemical research: **Center Vision**
- ❑ Potential for **Transformative Impact in Chemistry**: High risk challenges
- ❑ Agile Management Strategy promoting **Synergy**, self-assessment and evolution
- ❑ Center **Leadership** and Management Plan
- ❑ **Integrated Broader Impacts**:
  - Innovation
  - Higher Education and Professional Development (college through postdoc)
  - Broadening Participation
  - Informal Science Communication (museums, youth groups, libraries, civic groups, science festivals.... lots of options)



# Phased Approach to Centers

## ❑ Phase I: \$1.8 million total/3 years

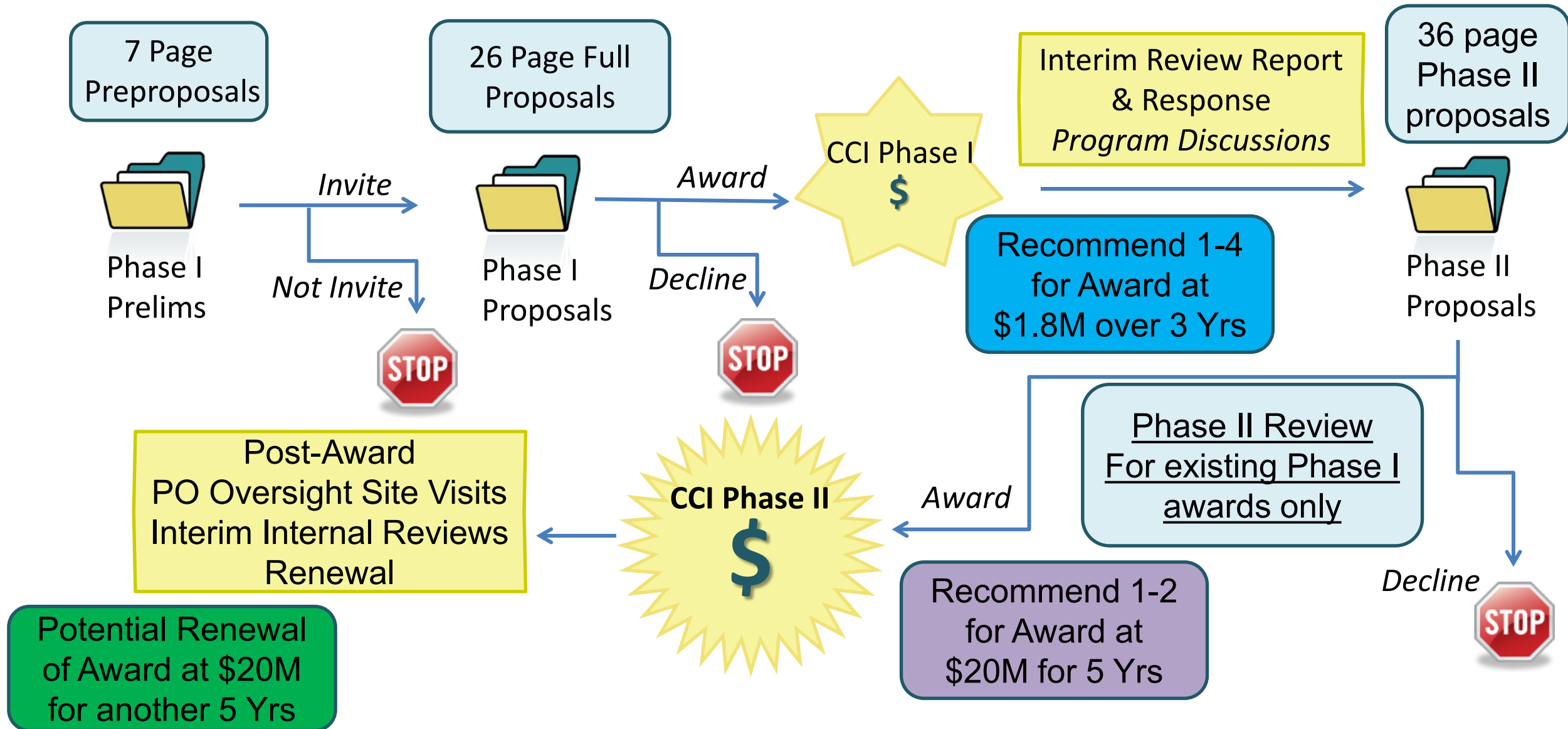
- Develop the team,
- Build out the center's programs
- Conduct research critical to demonstrating approach
- **4-5 Faculty, 5 Graduate Students or Postdocs per year**
- Phase II proposal/critical review in Yr. 3

## ❑ Phase II: \$20 million over 5 years (up to \$40 million over 10 yrs possible with renewal)

- Conduct high-impact, transformative research
- Innovation integrated with higher education, broadening participation, and informal science communication
- **12-24 Faculty, 30 Graduate Students or Postdocs per year, Center staff**
- Post-award oversight; possible renewal in Yr 5



# From Idea to a Phase II Center



# Current Phase I Centers

New Phase I preliminary proposals and full proposals from institutions currently leading a CCI effort (Phase I or Phase II) are discouraged

9/2020 – 8/2023

**CCI Phase I: NSF Center for Chemistry with Electric Fields (ChEF, Columbia Univ)**

**CCI Phase I: NSF Center for Integrated Catalysis (CIC, UCLA)**

**CCI Phase I: NSF Center for the Mechanical Control of Chemistry (CMCC, Texas A&M Univ)**

9/2021 – 8/2024

**CCI Phase I: NSF Center for Adapting Flaws into Features (CAFF, Rice Univ)**

**CCI Phase I: NSF Center for Quantum Electrodynamics for Selective Transformations (QuEST, Univ of Rochester)**

**CCI Phase I: NSF Center for Quantum Dynamics on Modular Quantum Devices (CQD-MQD, Yale Univ)**

9/2022 – 8/2025

**CCI Phase I: NSF Center for Advanced Molecular Architectures for Quantum Information Science (QIS, UCLA)**

**CCI Phase I: NSF Center for Chemoenzymatic Synthesis (CES, Northwestern Univ)**

**CCI Phase I: NSF Center for Interfacial Ionics (CI2, Univ of Oregon- Eugene))**

**CCI Phase I: NSF Center for Single-Entity Nanochemistry and Nanocrystal Design (SENND, Indiana Univ)**



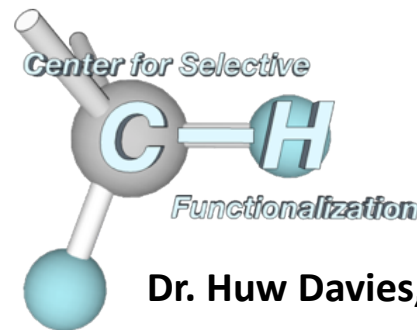


# Current Phase II Centers



NSF center for aerosol impacts  
on chemistry of the environment

Dr. Kimberly Prather, UCSD (FY14)



Dr. Huw Davies, Emory University (FY13)



Center for  
**Sustainable Polymers**

Dr. Marc Hillmyer, University of Minnesota (FY15)



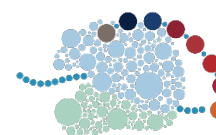
**The Center for Sustainable Nanotechnology**

Dr. Robert Hamers, University of Wisconsin at Madison (FY16)



Center For Synthetic Organic  
**ELECTROCHEMISTRY**

Dr. Shelley Minteer, University of Utah (FY21)



**C-GEM**

NSF Center for Genetically Encoded Materials

Dr. Alanna Schepartz, UC Berkeley (FY21)



Center for Computer  
Assisted Synthesis

Dr. Olaf Wiest, University of Notre Dame (FY23)



Center for the Chemistry of Molecularly Optimized Networks

Dr. Stephen Craig, Duke University (FY22)



<http://nsf-cci.com>

# FY 2024 CCI Solicitation ([NSF 23-575](#))

- Open to projects in **all fields supported by the Division of Chemistry**, and must have scientific focus and significant potential for **Transformative Impact in Chemistry**.
- NSF Division of Chemistry **particularly encourages** fundamental chemistry projects aligned with articulated budget priorities, including:
  - **Advanced Manufacturing**
  - **Artificial Intelligence**
  - **Microelectronics and Semiconductor Research**
  - **Biotechnology**
  - **Climate Research and Sustainability**
  - **Clean Energy**
  - **Quantum Information Science**





# CCI Phase I Preliminary Proposals

- Cover Sheet
- Project Summary (1 page: Overview, IM & BI)
- **Project Description (7 pages)**
- References (up to 15 citations)
- *Biographical Sketches for PI and other Senior Personnel\**
- *Current and Pending Support for PI and other Senior Personnel\**
- Collaborators and Other Affiliations (COA) for PI and other Senior Personnel
- Single Copy Documents
  - Suggested Reviewers/ Reviewers Not to Use

\*Per the PAPPG, these two documents must be submitted via SciENCv on and after October 23, 2023

Submit Using Research.gov

[NSF 23-575](#)



# CCI Phase I Prelims: Project Description (7 pgs)

- **Table of Investigators (1 page)**: include the names, institutions and expertise (keywords) of the PI and all Faculty Associates; non-funded collaborators may also be included on this table but should be clearly marked as such
- **Narrative (6 pages)**: emphasize impact on chemistry in a broad context
  - Center Vision
  - Potential for Transformative Impact in Chemistry
  - Potential for Synergy
  - Phase I Research Plan
  - Broader Impacts- center-wide plans

[NSF 23-575](#)



# I. Review Criteria for Phase I Preliminary Proposals

## CCI-Specific Criterion

## Questions

- Scientific **Vision** and Scope → Is the challenge “*big enough*” for a center? Is there a *unified vision* across the work?
- Potential for **Transformative** Impact in Chemistry → Is this important *chemistry*? *Does it matter*?
- Potential/Evidence for **Synergy**/Outcomes → Will the team members help each other do *better science*? Would a few single investigator awards accomplish the outcomes? Can the team (or any team) make progress on this problem?





# Review Criteria for Phase I Preliminary Proposals

- II. • **Intellectual Merit-** *What is the potential to **advance knowledge**? Is it well-reasoned, well-organized, and based on a **sound rationale**?*
- III. • **Essential Broader Impacts for CCI Proposals/Centers:** *potential to benefit society*
  - **Innovation (Knowledge Transfer)-** *will this project impact society? capable of translating research to key non-academic stakeholders via intellectual property protection, licensing, entrepreneurship, or knowledge transfer paths*
  - **Higher Education and Professional Development-** *center-wide plan for the education and professional development of undergraduate, graduate, postdocs*
  - **Broadening Participation-** *center-wide plans for increasing engagement by underrepresented groups.*
  - **Informal Science Communication:** *(museums, youth groups, libraries, civic groups, science festivals.... lots of options, but NOT K-12 classroom)*



# FY 2024 CCI Solicitation ([NSF 23-575](#))

## Submission Deadlines

Phase I	Phase II
<b>Aug 10, 2023 – Preliminary Proposals</b>	Oct 18, 2023 – Full proposals (Phase I Cohorts only)
Feb 07, 2024 – Full Proposals (by invitation)	

## Program Contacts

Kathy Covert [kcovert@nsf.gov](mailto:kcovert@nsf.gov)

Greg Collins [grcollin@nsf.gov](mailto:grcollin@nsf.gov)

Colby Foss [cfoss@nsf.gov](mailto:cfoss@nsf.gov)

Richard Johnson [ricjohns@nsf.gov](mailto:ricjohns@nsf.gov)



# Interested in submitting a CCI Preliminary Proposal?

- Read the solicitation ([NSF 23-575](#))
- Browse some CCI websites
- Assemble your team; refine your idea

*An investigator may participate (as PI or other Senior Personnel) in only one Prelim Proposal, one Phase I Proposal and one Phase II Full Proposal team in a year*
- Write up a short summary (1-1½ page); email it to one of the program contacts; ask for a phone or video-conference to discuss
- Submit preliminary proposal by **August 10, 2023**





Thank you for participating!

Questions?

