Lunch with National Science Foundation Program Directors

Walt Peacock
2020 Researchers Meeting
July 16, 2020

Contents

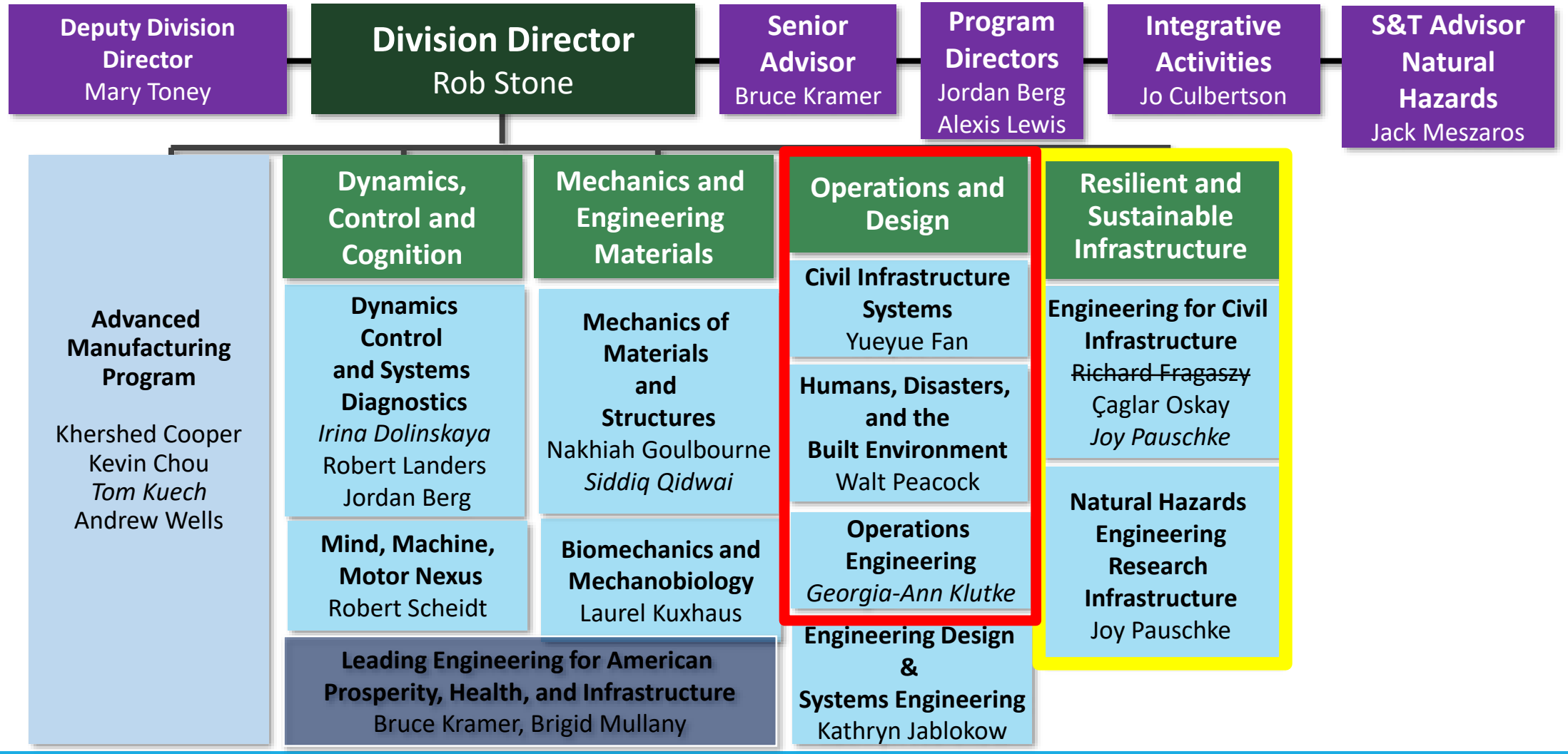
- Overview of three programs (HDBE, CIS, and OE) in the Operations and Design Cluster within Civil, Mechanical and Manufacturing Innovation (CMMI) Division.
- Funding opportunities/mechanisms (broadening your targets)
  - Unsolicited grants and more normal grant opportunities
  - Special Solicitations/programs (with some examples)
  - Supplemental funding
- You need NSF, and NSF needs you too!

A statement of contrition and warning

I am sorry…
Forgive me…

[Words that you will hear or see from me, when I fail to respond to your first, second or even third email/voicemail. I am doing my best, but I am sure I will miss your messages… Just keep trying.]

Civil, Mechanical and Manufacturing Innovation (CMMI) Division



Humans, Disasters and the Built Environment (HDBE) Program

- **PROGRAM DIRECTOR:** Walt Peacock (with support from Jack Meszaros)
- **Focus:** The program supports fundamental, multidisciplinary research on the interactions between humans and the built environment within and among communities exposed to natural, technological and other types of hazards and disasters.
  - The program seeks proposals that enrich understanding and explore implications of these interactions, through theoretical, methodological or empirical advances, contributing to society's capabilities to mitigate, prepare, respond, and recover from hazards and disasters.

- Target is addressing the linkages between **<u>Humans, Disasters, and the Built Environment</u>**

Civil Infrastructure Systems (CIS) Program

- **PROGRAM DIRECTOR:** Yueyue Fan
- The Civil Infrastructure Systems (CIS) program supports fundamental and innovative research in the design, operation and management of civil infrastructure that contributes to creating smart, sustainable and resilient communities at local, national and international scales.
  - This program focuses on **civil infrastructure as a system** in which interactions between spatially- and functionally-distributed components and intersystem connections exist. All critical civil infrastructure systems are of interest, including transportation, power, water, pipelines and others
  - The program particularly welcomes research that addresses ***novel*** **system and service design, system integration, big data analytics, and socio-technological-infrastructure connections**.

Operations Engineering (OE) Program

- **PROGRAM DIRECTOR:** Georgia-Ann Klutke
- **Focus:** The program supports fundamental research on advanced analytical methods for improving operations in complex decision-driven environments. Analytical methods include, but are not limited to, deterministic and stochastic modeling, optimization, decision and risk analysis, data science, and simulation.
  - *Research must be motivated by problems that have potential for high impact in engineering systems*
  - *Broad application domains: production, manufacturing, distribution of goods, delivery of services, resource allocation, public safety and security, health care delivery, environment and energy, new and emerging domains, addressing systemic societal needs or technological challenges.*

Funding Mechanisms (grant opportunities)

- Unsolicited proposals to core programs
- Rapid Response Research (RAPIDs)
- Early-Concept Grants for Exploratory Research (EAGER)
- Workshops/Conferences
- Special Solicitations and Programs (Jack has already discussed one of these)
  - Faculty Early Career Development Program (CAREER)
  - Leading Engineering for America's Prosperity, Health, and Infrastructure (Leap HI)
  - Coastlines and People (CoPe)
  - Smart and Connected Communities (S&CC)
  - Civic Innovation Challenge (CIC)
- Supplements

Funding Mechanisms: Unsolicited proposals

- **Core/Unsolicited: Typical Proposals** directed to specific programs
  - Two to four years; Don't ask me how much!
  - Individual/small collaborative teams: funds increase for collaboration*r*
  - ***No deadlines in ENG*** *(deadlines elsewhere);* Investigators have a 1-year moratorium on re-submission of substantively similar proposal.
  - **By accepting proposals at any time ENG is affording PIs the opportunity to:**
    - think more creatively about proposed work;
    - build strong collaborations;
    - converse with Program Directors;
    - Ask for what you need to complete the work proposed; and
    - carefully prepare proposals.

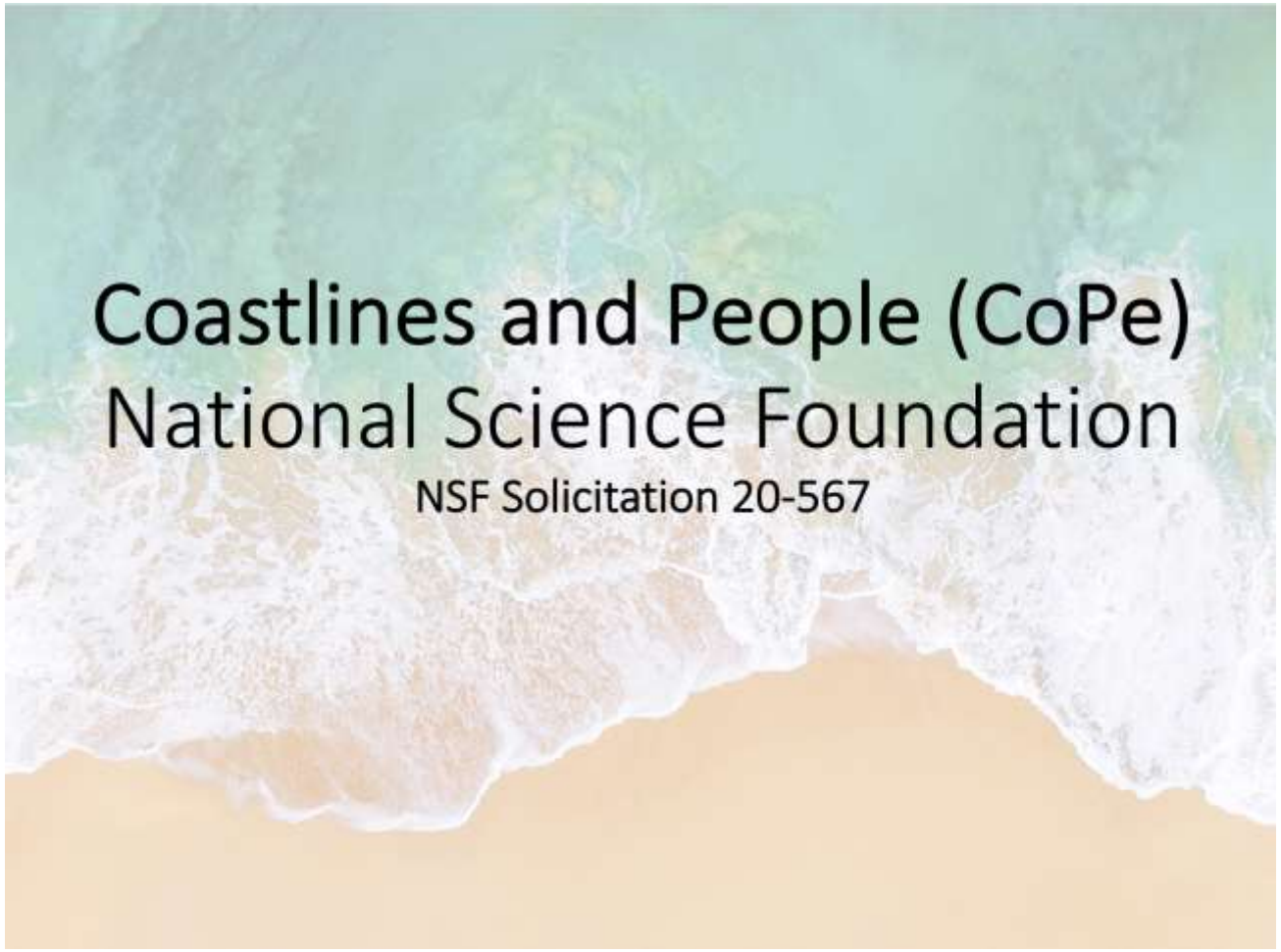
Funding Mechanisms

- **Rapid Response Research (RAPID):** Must inform and be approved for submission by the PD. Up to 200K (1- year) but programmatic ranges. HDBE and the OD cluster has a cap of 50K. Review process contingent on program and amount. Not for "rapid" research, but for rapidly collecting ephemeral data collection in the support of research!
- **Early-Concept Grants for Exploratory Research (EAGER):** Must inform and be approved for submission by the PD. Up to 300K (2-year) but programmatic variations. Review process contingent on program and amount. HDBE gives a very, very small number of these.
- **Workshops/Conferences:** Focused events to review state of art, identify gaps and challenges, suggest paths forward, and build consensus. Again these have been somewhat limited for HDBE. Talk with your PD and get approval before submission; again limits and programmatic caps.

Funding Mechanisms: Special Solicitations/Programs

- **Special Solicitations: Are just that, solicitations for particularly kinds of proposals, targeting special areas of Science/engineering, may and often do have additional review criteria – in addition to Intellectual Merit and Broader Impacts. May have special requirements, deadlines, letter of intent requests, etc.**
- **Faculty Early Career Development Program (CAREER):**
  - Hold a doctoral degree as of submission date
  - Be employed in a tenure-track (or equivalent) position as of October 1 following submission
  - Be employed as an assistant professor (or equivalent) as of October 1 following submission
  - Have not competed more than two times previously in the NSF CAREER program
  - Have not previously received an NSF CAREER award
  - Criteria: IM, BI, and integrated research and education. Departmental buy-in/support
  - $500,000+ for 5 years. **New deadline: August 11, 2020.**

Special Solicitations: Coastlines and People (CoPE)



Interested in the intersection between natural processes and hazards with human dynamics and the built environment

Broadening Participation and outreach is an important component

- In FY18, NSF funded 4 concurrent scoping workshops. https://coastlinesandpeople.org/
- FY19, funded Conferences, EAGERS, and Research Coordination Networks (RCNs).
- FY20-567 GEO, ENG, SBE, BIO, OIA, EHR
  - Track 1: Focused Hubs 1 million or less
    - LoI: August 10; Proposals: September 9
  - Track 2: Large-Scale Hubs
    - LoI: September 28; Proposals October 28

Special Solicitations: Smart and Connected Communities (S&CC)

S&CC Integrative Research Grants (SCC-IRGs) Awards in this category will support fundamental integrative research that addresses technological and social science dimensions of smart and connected communities and pilot solutions together with communities.

- Track 1 is for budgets greater than $1,500,000 with no recommended budget limit, and for up to four years of support.
- Track 2 is for budgets not to exceed $1,500,000, and for up to three years of support.

S&CC Planning Grants (SCC-PGs). Awards in this category are for capacity building to prepare project teams to propose future well-developed SCC-IRG proposals. Each of these awards will provide support for a period of one year and may be requested at a level not to exceed $150,000 for the total budget

Funding. $43M FY 2020

Special Solicitations: Civic Innovation Challenge

Part of S&CC:

- CIVIC flips the community-university dynamic, asking *communities* to identify civic priorities and then to partner with researchers;
- CIVIC focuses on research that is ready for piloting.
- CIVIC requires the inclusion of civic partners in the core project team, to emphasize civic engagement; and
- CIVIC organizes and fosters "communities of practice" around high-need problem areas.

Two tracks:

- Track A. Communities and Mobility: *Offering Better Mobility Options to Solve the Spatial Mismatch Between Housing Affordability and Jobs*; and
- **Track B. Resilience to Natural Disasters: *Equipping Communities for Greater Preparedness and Resilience to Natural Disasters*.**

Two Stages:

- Stage 1: about 12 awards per track will be made for Planning Grants – up to $50,000 for four months (August 3rd)
- Stage 2: about four teams per track will be selected from Stage 1 award recipients to receive a full award — each with a budget of up to $1,000,000 for up to 12 months to execute and evaluate their research-centered pilot projects. (March 31, 2021)

Award Supplements…

- *REU supplement:* up to two students in one year; if two, one must be from an underrepresented group; $8,000 per student
- *Design supplement:* Used to support design projects aligned with awards. $4,000
- *CAREER-Life Balance supplement:* Supplements to help ensure research continuity during life challenging periods. Generally for graduate student support, $12,000K.
- Internship for Graduate Students: support student internships with private sector, government, non-profits, etc. up to 55K per student.
- Data Science Supplements (DCL 20-027) project supplemental funds to expand the breadth of their current activities through exploration and implementation of Data Science approaches. No more that 70K and/or 20% of original budget
- *Interagency agreements/supplements:* Used to expand or enhance research into other areas of interest to another government agency. Can be in excess of 20% of the original award can be recommended without external review (if external agency agrees and you can make your case with the PO).

NSF will need you… think about stepping up

Some options for joining NSF:

- Intergovernmental Personnel Act (Rotator)
- Visiting Scientist, Engineer and Educator Program
- Permanent Positions
- https://www.nsf.gov/careers/

The Northern Virginia region is family-friendly. It offers:

- Outstanding neighborhood, blue ribbon primary/middle schools
- Excellent, reliable, safe transportation systems
- Rich history; museums; other attractions in the nation's capitol
- Housing is never an issue – too many options

Will the time right be right for you? Let me know if you want to talk…