

## BACKGROUND

### A. PURPOSE

The purpose of this new program at Columbia University is to encourage the successful pursuit of substantial multi-year, multi-investigator, interdisciplinary center grants and provide SEAS-led research teams with early-stage, advance support in planning for competitive, large-scale proposals in the range of \$10M or more. Examples include large funding opportunities from federal agencies (e.g., NSF Science and Technology Centers, DOE Energy Frontier Research Centers) or foundations (e.g., Simons Institute, Mellon Just Futures Initiative, MacArthur 100&Change). We expect research teams to propose tackling significant and complex research questions that would not be feasible to pursue through individual efforts. Teams should be poised to pursue a compelling, external proposal opportunity after receiving a Stimulus Grant Award.

It should be noted that bringing together teams to pursue center-like grants is a long-term prospect, often requiring multiple attempts at pursuing funding. Successfully acquiring large-scale funding should be viewed as a marathon rather than a single sprint. As a result, there is significant value in developing the research community to be well-positioned to continue pursuing large-scale funding, even if a first attempt is unsuccessful. The purpose, therefore, for this Stimulus Grant Competition is twofold: 1) to encourage the pursuit of center and center-like grants, and 2) to position the research community to achieve their goals for creating new large scale research agendas that may have been initiated through efforts from previous proposals and idea and team-building efforts. In further recognition of the extraordinary effort required to lead the development of large center-scale proposals, SEAS has also piloted a new program to partially compensate PIs who step up to take on this role.

### B. REASONING

Winning such awards (a) deepens ties between different disciplines, schools, departments, and external collaborators (b) provides long-term, stable support for cutting-edge research groups, (c) fosters junior faculty, (d) attracts top-notch faculty, postdocs, and graduate students, and (e) increases the success rate of associated subsequent proposals and potentially positions Columbia to be in a position to influence future research directions and funding opportunities.

However, such proposal preparation demands leadership commitment and outsize time of the primary PI(s). Being competitive for these “center-type” grants requires significant advanced planning, a well-defined and central research theme, a diverse and complete team, strong preliminary data, and a history of partnership among collaborating investigators that often span multiple disciplines/departments/schools and/or institutions.

In addition, some funders, particularly the NSF, require sophisticated governance structures, communications plans, outreach programs, and the development of entrepreneurial and innovation ecosystems. Finally, Federal Agencies appear to increasingly emphasize partnerships with technology developers, end-users or beneficiaries as a test of the transformative power of the Center’s potential. PIs may have little familiarity or experience with some of these non-research components. Yet, these “peripheral” issues can decide success when the agency has whittled down the initial 200 applications to the last ten for a site visit. Thus, there exist few incentives for PIs to submit proposals to these competitions. Ironically, even though the odds of winning may be 1:50 rather than the “normal” rate of 1:3, the PI may secure less individual support than a standard grant. And, if successful, the PI has many added managerial responsibilities.

Therefore, to encourage the preparation of successful center grants, SEAS and EVPR propose piloting a **Center Stimulus Grant Competition** whereby together they would provide (up to two) grants of \$200K a year, renewable for a second year for a total of \$400K each, to enable PIs to prepare more competitive major interdisciplinary grant proposals. The selection process will involve a two-step process whereby the first cut requires teams to meet with the SEAS/EVPR administrators to discuss their proposals. Selected teams will also be required to closely work with the SEAS Office of Research (in collaboration with EVPR staff) on a proposal development plan throughout the grant period, and continued funding is contingent on progress on this plan SEAS reserves the right to only support proposals where an Engineering researcher is lead or co-PI.

# SEAS-EVPR CENTER STIMULUS GRANT COMPETITION

## I. QUALIFYING TARGET FUNDING OPPORTUNITIES

The Center Stimulus Grant program, jointly supported by SEAS and the EVPR Office, seeks to encourage teams of PIs to pursue large-scale (multi-million dollar) grants that support interdisciplinary, cutting edge, fundamental research. The funding opportunities that such stimulus awards target include:

- Substantial interdisciplinary, multi-PI, multi-year grants such as those listed in <https://research.columbia.edu/centergrants/calendar>. Other funding opportunities may qualify; applicants should check with SEAS Office of Strategic Research Development before preparing an application for the Stimulus Grant.
- The term “Center” need not be in the RFP title to qualify, so long as the RFP meets the criteria of supporting multi-unit PI teams in pursuing external, multi-component, large-scale grants in the range of \$10M or more (for example, NSF’s Research Traineeship Program, NRT).
- The Center Stimulus awards do not target RFPs with a narrow disciplinary or disease-specific focus (e.g. NIH’S Alzheimer’s Disease Centers). However, a disease area can be the focus of a proposal to a broader RFP (ex. NIH’s Physical Sciences Oncology Centers).
- Only to be used for proposals that Columbia University intends to lead.

## II. PROCESS AND REQUIRED CONTENT IN A CENTER STIMULUS GRANT APPLICATION

### Application Process:

- **Pre-Application Meeting.** The selection process involves a two-step process, beginning with a brief meeting with the SEAS/EVPR research development team to discuss the anticipated proposal. Interested teams should contact Samar Kaukab ([sk4578@columbia.edu](mailto:sk4578@columbia.edu)) with a synopsis of their research idea, its intellectual merit and novelty, and its capacity to be developed into a center-like research program in the future. Following this, teams will be invited to submit a written application. (See below for application details).
- **Invited Proposals.** Teams will be invited to submit Center Stimulus proposals by April 1, 2022. Funding decisions for 12-month awards will be made before the end of the Spring semester.
- **Research Development Support.** Funded teams will be required to work closely with the SEAS Office of Research (in collaboration with EVPR staff) on a proposal development plan. In order to receive funding, grantees must commit to meet monthly with research staff for the duration of the grant to discuss progress. The SEAS Office of Research and EVPR staff can also offer support and make connections to other resources.
- **Renewals.** Teams will be invited on a case-by-case basis to submit renewal applications for further planning and development of ideas.

### Application Details:

Upon invitation, proposing teams should submit the following:

1. **Agency & Deadlines.** If relevant, what Federal Agency or Foundation funding opportunity do you intend to pursue? (Please attach the RFA or the last RFA announced that was similar.) When is the proposal (and pre-proposal, if applicable) due or anticipated to be scheduled? (Strong preference for those at least 18-36 months out.)
2. **Proposed Center.** In 1 to 2 pages, describe the proposed center. Your narrative should include the following:
  - a. *Research Concept*
    - What is the Research Concept? Often agencies and foundations want to understand the transformative *Vision* the center sees and then the specific *Mission* of what the Center would do to help achieve that *Vision*; describe both the center’s mission and vision.

- Why is Center-level funding needed to carry out this work? How will the whole be more than the sum of the individual efforts?
  - b. Team Composition*
  - Who will the PIs and Co-PIs be? Describe the disciplinary and cross-school composition of the proposed team. Describe the diversity of existing team talent, as well as current gaps in expertise that is necessary and/or aspirational to include. If relationships must be pursued, what is your plan to include new members?
  - What other internal and external team members are you considering? Do you have connections to these potential team members, or will you need introductions?
  - External team members— What is the institutional and geographical composition of the team? (Will this effort be multi-institute? Does your team span national laboratories, industry partners, or nonprofit organizations? What areas of the country are represented?)
  - c. Why Columbia, why now?*
  - What distinct strengths/assets at Columbia would this draw on?
  - How would the existence of this Center contribute to Columbia’s research enterprise?
  - d. “Broader Impacts”*
  - What non-research components of the proposal are critical to winning the award? How do you intend to pursue them, or is this an aspect that you are looking for support on?
  - Describe existing relationships, partnerships, programs that team members bring to the table or that already exist at Columbia or partner institutions. If partnerships with end-users are an important component, describe your strategy to secure these commitments or elaborate on your needs.
  - Brief description of how the team’s activities or approaches further SEAS’ commitment to diversity, equity, and inclusion (e.g., through the proposed science/scholarship, populations or settings examined or impacted, and/or efforts to create a diverse, inclusive research team, among other possibilities)
- 3. **Purpose of Stimulus Grant:** In 1 to 2 pages, describe specifically how you would use the stimulus grant to increase your chances of success. Describe expected outcomes or plans for a successful proposal.
- 4. Include a **Budget Narrative** (1 page) that outlines how you intend to spend the Stimulus Grant.
- 5. Include the 2-Page **CVs** of the proposed PIs and Co-PIs, both at Columbia and at other institutions. (Note, that most center-scale grants prefer leadership teams that stretch across multiple institutions.)
- 6. **Partnerships.** List the specific academic and non-academic partners (national laboratories, industry partners, NGOs, outreach organizations) and/or a description of the kinds of partners the Center needs and how these relationships will be pursued.
- 7. **Research Development Support.** Funded teams will be required to commit to meet with the SEAS Office of Research (in collaboration with EVPR staff) on a monthly basis for the duration of the 12-month award period to develop a tailored proposal development plan.

### III. EXAMPLES OF CENTER STIMULUS ACTIVITIES & BUDGET

#### *Brainstorming*

- Series of workshops to pull together PIs from multiple disciplines/universities to further explore an important topic

#### *Interdisciplinary Pilot Data or Programs*

- Hire a postdoc across the relevant disciplines (note that a postdoc should already be identified.)
- Establish a reading group or some sort of seminar series
- Pilot an interdisciplinary class or workshop for graduate or undergraduate students

#### *Develop External Partnerships or Outreach Programs*

- Build liaisons with HBCUs, MSIs, Community Colleges, including piloting (or supplementing an existing) REU, RET, or Winternship program.

- Build deep, long-term relationship with a company, which could itself lead to additional research funding
- Develop industry partner relationships that provide access to data and/or instruments/facilities that are otherwise inaccessible to academic institutions or develop a relationship with an industry partner who could scale up a research idea to be commercial-ready.
- Establish a Partner Advisory Board from industry, NGO's, city and state governments
- Develop your outreach program for K-12 education

*Organizational*

- Hire a PT or FT project manager/consultant to help determine feasibility, develop partnerships, and/or provide organizational/administrative support

#### **IV. TIMING AND EVALUATION PROCESS**

- **Proposals will be evaluated on the following criteria:** (a) Research Quality and Importance (potential for advancing the field, scholarly innovation, novelty), (b) Willingness to partner on and advance proposal development best practices, including the development of managerial/leadership capability and experience, a clear and feasible plan toward submitting a center-like proposal, team composition, and, in the case of NSF, ability to fulfill the Broader Impact Requirements, (c) Alignment of proposal topic with SEAS/university priorities (where relevant), (d) Capacity for funding to be transformative for proposal planning purposes, (e) Competitiveness, and (f) Commitment to working with research development staff.
- **Proposed Timing:**
  - Announce program in February, 2022
  - Proposals due Friday, April 1, 2022
  - EVPR/SEAS decide and announce selected teams before end of Spring term
- **Renewal Process:**
  - Progress Report due a month before the expiration of the first year.
  - Case-by-case given the potential diversity of the proposals