2023 MIT Chemical Engineering Postdoc Grant Call for Proposals

Overview

A postdoctoral fellowship represents a critical junction in the path from a trainee to a principal investigator orchestrating their own research program. During this transition towards increased research independence, many ChemE postdoctoral fellows struggle to find opportunities to hone their grant-writing skills, a key contributor to their future success as faculty. In this program administered by the Chemical Engineering Communication Lab, **we aim to address this gap through a postdoctoral research grant contest that pairs training in grant writing with the potential to win a $10,000 research grant**.

Our objective is to provide applicants with a deep and authentic learning experience where they will learn how to craft a tailored and well-argued proposal through a **compulsory workshop and individual coaching.** Two of the best applicants will be awarded with a mini research **grant to develop their independent research interests**. These outstanding applicants will have developed an **innovative plan to explore new research directions** including a compelling case for the **intellectual contribution of their proposal to their future mission as independent investigators.**

Grant awardees will secure $10,000 in funds to explore their proposed research thread part-time, in addition to their primary research within the upcoming academic year at MIT. *The ideal proposal should not be a direct extension of the applicant's current research, but should rather support research to be performed in the applicant's future career as an independent investigator.* During the tenure of the award, all awardees are expected to be exposed to new theories and methods which represent their own intellectual interest and contribution.

This program will provide robust grant-writing training for all applicants to better prepare them for the academic market, while providing awardees a kickstart for launching their unique research vision. Therefore, **we invite all postdoctoral members of the MIT ChemE community** to watch the recording of the workshop, participate in the live Q&A, schedule individual coaching appointment(s) with the Communication Lab, and then submit an application for the award contest by **Sunday, July 30 10pm EDT**.

We are also looking for postdocs interested in serving on the selection committee (see eligibility criteria below).

Format of the proposal

The research proposal should be about **3-5 pages in length and include at least one overview figure**. More figures are allowed but not required. The proposal must include the sections listed below. Word limits for each section are given in parenthesis as a guide (+/- 10%). Guiding questions or explanations for each section are provided in *italics*. Avoid identifying information such as author names, PI names or self-citations in the document to facilitate the double-blind peer review process.

1. Research title
2. Lay abstract of proposed research (150 words)
   Targeted at a non-expert, scientific audience; see training and annotated example for details.
3. Intellectual contribution of the proposal to your future mission as independent investigator (150 words)
   What is your expertise? What are your long-term scientific goals and how does the proposed research bring you closer to achieving these goals?

4. Abstract of research plan including specific aims (250 words)
   Similar to conference or journal abstract for a ChemE audience.
5. Research plan (1500 words)
   5.1. Introduction
   Provide 10-20 literature references to place your proposed research in context of your field.
   5.2. Significance
   5.3. Experimental design and Methodology
   Describe your experimental rationale, methods, expected outcomes and expected challenges, as well as proposed solutions to overcome these challenges.
   5.4. Budget
   Describe what resources are available to you and what other equipment/consumables/ chemicals and/or services you will need for success (text and/or chart).
   5.5. Timeline
   Describe milestones and deliverables (text and/or chart).
   5.6. References

Contest rules regarding use of AI-based tools

The goal of this research program is to help trainees become more effective in persuasively conveying their research ideas and potential to a diverse audience of chemical engineers. These skills are essential to becoming a PI and funding your lab. AI-tools such as ChatGPT are not banned as part of this contest, but extensive use of AI to compose and rewrite your proposal is discouraged as this use does not serve our learning objective. Consider this a safe place to practice your skills and receive honest feedback and coaching on your proposal writing. Any work that uses AI must be cited in the proposal including the tool used, the text of the initial query, and the final output. You can read more about the benefits and limitations of AI for research in our latest blog post.

Eligibility Criteria

Every postdoc with an MIT ChemE affiliation through an MIT ChemE faculty advisor is eligible to apply. At the time of submission, the applicant must have started their appointment at MIT (Postdoctoral fellow or associate) and is not allowed to have accepted a new position that will start within the following academic year (2022-2023). Applicants must propose work to be done at MIT in the lab of their ChemE faculty advisor. At the time of submission, faculty endorsement of the application is not required, however, the award can only be accepted with written consent of the faculty advisor.

The award can only be given to a candidate once during their postdoctoral training, however, repeat applications in the case of unsuccessful application, are allowed with revisions. An applicant can only submit one application per competition year. There is no restriction on the number of applicants per faculty advisor/lab.

Applicants are required to attend the training developed by the ChemE Communication Lab. A recording of the session will also be made available for those with a conflict so they are not at a disadvantage. Before submitting the proposal, the applicants are required to **make at least one coaching appointment** with a ChemE Communication Lab fellow to work on the proposal. Failure to meet these requirements renders the applicant ineligible to receive the award.

For postdocs interested in serving on the selection committee:

We believe that giving postdocs the opportunity to be part of the selection process is great training for their future career (academic but also for future entrepreneurs). We are eager to invite 6 postdocs to serve on the committee along with our faculty advisor and Communication Fellows.

As a peer-reviewer, you commit to the following:

1) You cannot enter the award competition
2) You will review the workshop materials
3) You will be available to review proposals in the two weeks following the application close on Sunday, July 30
4) You will attend the oral presentations of the selected candidates, two 1.5-hour sessions scheduled in August or September, depending on the review committee schedule.

We anticipate there will be three committee meetings: one in July to cover our rubric, one in August to select candidates for oral presentations, and one in early September to make the final selection.

If you have questions about eligibility, please contact the ChemE Communication Lab manager, Caitlin Stier at cstier@mit.edu.

Application Process

There is one competition per year. **The submission deadline for the current call is 07/30/2023, 10 pm (Eastern Daylight Time)**.

The written application must be submitted before the deadline as a single pdf file **using our Google Drive form**. An endorsement letter by the faculty advisor will be requested upon award acceptance.

Shortlisted applicants will be invited to give a short presentation (chalk talk-style) to the selection committee, who will then make a final decision. Chalk talks will be thirty minutes in length with no more than five slides. The presentation portion will be between 10-15 minutes in length with the remaining time dedicated to questions.

Important dates:

- Attend workshop– Thursday, June 29 10-11:30am in 56-614
- Proposal preparation coaching before Sunday, July 30 (mandatory)
- Submission deadline – Sunday, July 30 at 10pm EDT
- Evaluation – August 2023
- Oral presentations – late August/early September
- Final decision – Monday, September 18

Review Process

There is a two-step review process. In the first step, the selection committee will assess the eligibility of the candidates and select a number of proposals to proceed to the second evaluation step, based on the quality of the written proposal. In the second step, shortlisted candidates will give a short presentation about their proposed work to the selection committee. Based on the quality of the written proposal and the oral presentation, the selection committee will select the best candidates for the award. See below for selection criteria.

Composition of the selection committee

The selection committee will be composed of faculty, members of the postdoc community and Communication Lab fellows. To ensure unbiased assessment of the proposals, Communication Lab fellows will only review proposals they have not coached during the proposal preparation phase.

Criteria for selection

The selection committee will employ a rubric to assess the quality of the written proposals and oral presentations. Key criteria will be the

- Excellence of the written (and oral) proposal from a communication standpoint.
- Excellence of the applicant: scientific leadership potential with an emphasis on their future mission as independent investigators and their proposed intellectual contribution.
- Rigor and innovation of the proposed research: long-term strategic value for the applicant if exploring a new field and/or novelty of the proposed research direction.

Award Conditions

The award can be used within one calendar year. An extension is not possible. The funds will be administered through an independent MIT cost object and cannot be used to supplement the faculty advisor's lab or research conducted for the faculty advisor. The funds cannot be used to supplement or replace the awardee's salary, pay for overhead costs or benefits such as health insurance for postdoctoral fellows. The funds can be used for purchases related to the proposed project (chemicals, equipment, etc.), service contracts related to the proposed project (synthesis, analysis, -omics, etc.), travel to collaborators, travel to and use of off-campus research infrastructure, and to fund UROPs. Travel to conferences is only covered under specific circumstances and needs to be discussed with the Communication Lab manager ahead of time. All questions concerning these award conditions can be directed to the ChemE Communication Lab manager, Caitlin Stier at cstier@mit.edu.

Publication and Intellectual Property Rights

The results of research funded by this award must be reported to the Communication Lab at the end of the funding period. We furthermore expect that any results presented in conferences, published in internationally recognized scientific journals or on pre-print servers acknowledge the support by the award (e.g. "The work of Dr. "awardee" was supported by a postdoctoral research grant from the MIT Department of Chemical Engineering).

Research conducted in this program is subject to MIT's Intellectual Property Agreement that you signed when starting your position.

Confidentiality and Protection of Personal Data

All personal data of the applicants, the content of the submitted proposals and the final award reports will be treated confidentially. The selection committee and all members of the Communication Lab will not share the identity of the applicants or the content of the proposals or final reports with anyone inside or outside the MIT ChemE community without the applicant's consent. The Communication Lab reserves the right to ask the applicants for usage of their personal information and parts of their proposals or final reports at a later time for internal training purposes or reporting to the head of department.