

2020 Arnold O. Beckman Postdoctoral Fellowship in Chemical Sciences or Chemical Instrumentation Program Overview

Background

Following in the footsteps of our Founder, Dr. Arnold O. Beckman, himself a photochemist and instrument developer, the Arnold and Mabel Beckman Foundation recognizes the clear need for more support for postdoctoral training in the chemical sciences. The purpose of the Arnold O. Beckman Postdoctoral Fellows Award is to support postdoctoral fellows at research institutions across the United States who are judged to have the highest potential for success in a career in chemistry and who will become the next generation of leaders and innovators in science, engineering, and technology.

The Fellowships will be in two tracks:

- **Postdoctoral Fellowship in Chemical Sciences** will allow chemists to pursue advanced research within the core areas of fundamental chemistry, such as chemical physics, chemical engineering, and chemistry of materials research. This fellowship is not intended to fund proposals that are supported by traditional NIH mechanisms in the fields of medicinal chemistry, chemical biology, biochemistry.
- **Postdoctoral Fellowship in Chemical Instrumentation** will allow researchers in chemistry to conceptualize, develop and build instrumentation suitable to advanced research in chemistry, chemical physics, chemical engineering, and chemistry of materials science. Instrumentation projects must be suitable to the two-year fellowship timeframe, be driven by a need in the chemical sciences listed above, be innovative in method, speed or process or represent a wholly new instrument for technological advancement in chemistry, and may potentially be used for future research in the broader scientific community.

It is the Foundation's intent that the Arnold O. Beckman Postdoctoral Fellowship will be the catalyst to aid in the fellow's transition to an outstanding, independent academic research career or a research career in industry/governmental laboratories.

Award Amount

The Fellowship award amount is \$180,000 over 2 years for salary, fringe benefits, and research expenditures; instrumentation fellowships will receive an additional one-time amount of up to \$100,000, dependent upon a detailed budget for material/development costs in the proposal. The Fellowship may be extended to an optional third year with \$90,000 in funding for salary and fringe, dependent upon review of research progress and renewal application submitted during the second year of the Fellowship.

- Fringe Benefits (allowable costs): individual/family health insurance (any combination of medical, vision, and/or dental) whether purchased as a group or individual plan, disability insurance, retirement savings, and dependent care.
- Research Expenditures: these may include, but are not limited to, lab supplies and equipment, travel to scientific meetings, journal subscriptions, books, computers, personnel and training courses. These items should be detailed in the proposal budget and annual reports.
- The Arnold and Mabel Beckman Foundation does not provide for overhead or indirect costs. **Institutions are to provide funding for overhead and administrative costs.**
- Award recipients or mentors may have existing funding in similar areas of research, however **the new research proposed for this fellowship must be unique and currently unfunded.** During the term of the award, fellows may secure additional funding, but may not secure an additional named fellowship and must continue to work full-time on the research direction proposed.

Arnold O. Beckman Postdoctoral Fellows Award Annual Funding: 2020 program

Fellowship Category	Annual Stipend	Annual Research Expenditures	Annual Fringe benefits (medical/dental/health)	One-Time Payment For Instrumentation Development
Fellowship in Chemical Sciences	\$70,000	\$10,000	\$10,000	Not Applicable
Fellowship in Chemical Instrumentation	\$70,000	\$10,000	\$10,000	Up to \$100,000

Naming

Recipients of the award shall carry the title “Arnold O. Beckman Postdoctoral Fellowship in Chemical Sciences” or “Arnold O. Beckman Postdoctoral Fellowship in Chemical Instrumentation” alone and not in conjunction with any other name. Recipients may not hold any other named fellowship during the award period.

Program Year

The Arnold O. Beckman Postdoctoral Fellows are funded annually in June. Funding for the award term will be contingent upon the timely receipt of all required reports.

Each year of the 2020 Program will run from July 1 – June 30:

Year 1: July 1, 2020 – June 30, 2021

Year 2: July 1, 2021 – June 30, 2022

Optional Year 3: July 1, 2022 – June 30, 2023

Level of Commitment

Postdoctoral Fellows are required to pursue their research and professional training during the award term on a full-time basis.

Postdoctoral Transfer

The Arnold O. Beckman Postdoctoral Fellowship is transferable to other academic US research institutions that carry 501c3 or equivalent status when transfer is due to the Fellow’s Mentor moving institutions. In cases where the Fellow would like to change mentor, or institution, or both, during the term of the Fellowship, the Foundation will review those requests on a case-by-case basis.

Transition to Academic Position

Fellows who accept an academic faculty or full-time research position at an academic US research institution that carries 501c3 or equivalent status during the term of their award will be allowed to transition their remaining funding to their new institution. Refer to Award Terms and Acknowledgement document for complete details.

Early Termination of Award

Fellows who accept a position in industry, a government laboratory, or other non-qualified institution, during their award term will forfeit the remainder of the funding. The Fellow’s postdoctoral institution will be required to return the unexpended funds to the Foundation. Refer to Award Terms and Acknowledgement document for complete details.

Eligibility Criteria for Postdoctoral Applicants at time of application due date:

- U.S. Citizen or permanent resident of the United States; and
 - Current graduate student anticipated to complete a PhD in the chemical sciences by May 1, 2020; or
 - Current postdoctoral researcher with a granted/conferred PhD in the chemical sciences with no more than 12 months of cumulative postdoctoral research experience; and
- Must pursue postdoctoral training within the core areas of fundamental chemistry, such as: chemical physics, chemical engineering, and chemistry of materials research and, in an area of the chemical sciences that would likely not be eligible for funding by traditional chemical biology, biochemical or biological science mechanisms (e.g., NIH-K award); and
- Must have identified a mentor in the chemical sciences at a qualified US nonprofit institution with appropriate laboratory facilities to support their postdoctoral research proposal.

Eligibility Criteria for Sponsoring Mentors at the time of application due date:

- PhD or MD/PhD; and
- Full-time tenured or tenure track with at least a 25% appointment in a chemistry, chemical engineering, or materials chemistry department at their Institution; and
- Active investigator in the applicant's area of research; and
- Mentors may only sponsor one applicant per year for consideration.

Eligibility Criteria for Colleges, Universities and/or Institutions

- The Arnold O. Beckman Postdoctoral Fellowship is open to applicants at all U.S. colleges, universities or institutions which offer postdoctoral fellowship and hold a 501c3 designation or similarly qualifying IRS designation.
- Government Laboratories, such as NIH or federally funded national laboratories, are not considered eligible institutions.

Any of the following conditions will render an applicant ineligible

- At the time of application due date, applicants with more than 12 months of cumulative postdoctoral experience in a research lab or who are more than 3 years from their PhD, are not eligible to apply. Applicants who are more than 3 years from their PhD but have a documented Leave of Absence/Stop the Clock disruption from their academic careers due to military service, child-rearing, or other institutionally recognized leave of absence will be considered eligible.
- Applicants may not submit applications to both the "Chemical Sciences" and the "Chemical Instrumentation" fellowships in a single program year.
- Visa holders are not eligible to apply.
- Applicants may not have full-time faculty appointments.
- If, by May 1, 2020, a potential awardee has not successfully completed his/her PhD, the award will be rescinded by the Foundation. The Foundation will accept official transcripts or an official letter from the granting institution that the applicant has successfully defended and completed their PhD requirements by this deadline.

Application

Applicant may only submit one application per year, choose:

A. Chemical Sciences Fellowship or B. Chemical Instrumentation Fellowship

Applicant & Sponsoring Mentor

Before submitting the application, the applicant must have identified a sponsoring mentor who will supervise the fellow during the proposed mentored training and research experience. The sponsoring mentor must have at least a 25% appointment within a chemistry, chemical engineering, or materials chemistry department. **The proposed research direction may have existing support within the mentor's laboratory, however the specific research aims and tasks proposed for this fellowship must be clearly delineated from existing support.**

1. Applicant, Institution, Mentor information. (Online application)

Applicant must provide general information (name, address, contact information) for self, current and proposed institution and sponsoring mentor.

2. Institution's Letter of Support & Acknowledgement of Application (Institutional letterhead, PDF, See Format below, 3 pages max)

The institution must commit to support the Fellow and Sponsoring Mentor throughout the award period through the provision of, but not limited to the following: lab facilities, equipment, consumables, clerical/office staff support, computing resources and access to facilities necessary to their research.

Format of Institution's letter - **The first 3 sentences of the Institution Support Letter, must respond to the three prompts shown below and must be in this order; additional information may be included after these responses:**

1. Institution must state that they will provide for overhead and administrative costs; the Foundation does not provide for overhead or indirect costs.
2. Institution must clearly state its support and provision of Fringe benefits for the fellow. The fellowship provides \$10,000 for Fringe benefits (medical/dental/health benefits). However, if the \$10,000 provided by the Foundation does not cover the full annual cost, the institution must state how it will cover the remainder of the costs in order to make the Fellow "whole" or "equivalent/equitable" of an Institutionally Supported Fellow (often designated an Employee of the Institution).
3. Institution must state that Sponsoring Mentor is full-time tenured or tenure track with at least a 25% appointment in a chemistry, chemical engineering, or materials chemistry department at said institution.

Submitted by the Dean of the Department and/or Academic Unit/School that will be providing the support to the Arnold O. Beckman Postdoctoral Fellow, with appropriate signature.

3. Award Terms and Acknowledgement (Template provided; upload entire document as PDF)

Download Award Terms & Acknowledgement template (choose 1 template based on Chemical Science Application or Chemical Instrumentation Application), obtain the following signatures: Institutional Contact, mentor and applicant for signature. Upload the entire document to the online application.

4. Applicant's Career Plans & Fellowship Summary (PDF, 1 page max)

- Applicant must describe their career plans; and
- In narrative, describe what receiving an Arnold O. Beckman Postdoctoral Fellowship would mean to them, their career, and their professional development.

5. Applicant's Proposal - Choose either A. Chemical Sciences Fellowship or B. Chemical Instrumentation Fellowship (PDF, 1 inch margins, 5 pages max, including figures and tables. References will be attached as separate upload.)

A. Chemical Sciences Fellowship - Applicant's Independent Research Proposal

The research proposal should address a specific and substantive research question, should clearly articulate the significance of the research, and must meet the purpose of the Arnold O. Beckman Postdoctoral Fellows Award. Extensive discussion between the applicant and the proposed mentor is expected in order to identify an appropriate independent research project – one that is relevant, instructive and suited to a two-year fellowship period.

Applicants must describe in narrative a well-defined research project that is suited to his/her stage of career development.

The Applicant's research proposal must be organized as follows:

- A) Specific Aims: Identify the aims of the proposed research;
- B) Background: Applicant should describe the background leading to the proposed research, with a convincing argument for how the applicant developed the project idea and that the project is not already funded as part of the mentor's ongoing projects;
- C) Significance of the research: Include a brief historical background of the proposed research, including major findings by you and/or others in relevant fields;
- D) Proposed strategy and approach (research design and methods): Describe in detail the hypothesis, methodology, plans for achieving the specific aims, the rationale for the proposed approach, potential pitfalls and expected/alternative outcomes of the proposed studies;
- E) Other aspects: (formal and informal) of the program that will contribute to the total training environment (such as, interaction with senior professionals, participation in conferences, teaching, consultation, outreach, etc).
- F) Budget for the proposed research.

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B. Chemical Instrumentation Fellowship –The research proposal should address a specific and substantive instrumentation need, should clearly articulate the significance of the measurements or research that will be enabled by the new instrumentation, and must meet the purpose of the Arnold O. Beckman Postdoctoral Fellows Award. Extensive discussion between the applicant and the proposed mentor is expected in order to identify an appropriate independent research project – one that is relevant, instructive and suited to a two-year fellowship period.

The Applicant’s research proposal must be organized as follows:

- A) Specific Aims: Identify the aims of the instrument development and first studies that will be conducted by the applicant to test, verify, or commission operation of the new instrumentation;
- B) Background: Applicant should describe the background leading to the proposed development and assembly of the instrument, with a convincing argument for how the applicant developed the instrumentation project idea, how the project will fill a substantive instrumentation need, and that the project is not already funded as part of the mentor’s ongoing projects;
- C) Proposed strategy and approach (research design and methods): Describe in detail the technical approach, methodology, plans for achieving the specific aims, the rationale for the proposed approach, potential pitfalls and expected/alternative outcomes of the proposed studies;
- D) Instrumentation Dissemination and Sustainment plan: Describe the following for the new instrumentation:
 - a. How the new instrumentation technology and methodology will be disseminated to the larger scientific community, including the instrument design, operation, data format/provenance, and potential data analysis techniques; and
 - b. The disposition of the first instrument prototype at the conclusion of the postdoctoral fellowship; and
 - c. Anticipated new intellectual property and how that will be pursued and shared between the fellow, mentor and institution; and
 - d. Size of the potential market or impact of the new instrument, both within chemical sciences and the broader scientific community, if applicable.
- E) Other aspects: (formal and informal) of the program that will contribute to the total training environment (such as, interaction with senior professionals, participation in staff conferences, teaching, consultation, outreach, etc);
- F) Provide a timeline and budget to include materials, construction, testing, and other relevant costs for the instrumentation build to justify the additional one-time award of up to \$100,000.

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6. References (PDF format; include the full author lists and titles of all items referenced in Section 5. Proposal, shown above)

7. Mentorship and Career Development Plan (PDF, 1 inch margins, 3 page max, to be completed by the Sponsoring Mentor; if a co-mentor is proposed, page limit increased to 4 page max total)

The Arnold O. Beckman Postdoctoral Fellow program supports mentored research training from outstanding faculty mentors. The Mentorship and Career Development Plan or “training plan” should be individual for the applicant, keeping in mind the applicant’s strengths and any gaps in needed skills, and should be designed to enhance research training. The training should be coordinated with the applicant’s research strategy. The training plan should outline and justify new training opportunities, relevant coursework, and professional development activities. Training in professional development skills, such as grant-writing, presentation skills and lab management, is strongly encouraged. The training plan should have the potential to facilitate the applicant’s transition to the next stage of her/his career in scientific research.

If a team of mentors is proposed, this plan should describe the role of each mentor, the percentage of time they will commit to the Applicant and how they will communicate and coordinate their efforts to mentor the Applicant effectively. The mentor is not expected to meet all of the fellow’s career development need personally, but should provide an overall framework to ensure that the fellow has access to a broader academic network to support her/his work.

Mentoring and Career Development Plan:

- A) The research environment and the availability and quality of needed research facilities and research resources (e.g., equipment, laboratory space, computing resources, subject populations);
- B) The current laboratory staffing and management, including, but not limited to, how lab meetings are organized, the chain of command and expectations of postdocs in the lab, and opportunities for developing collaborations.
- C) The role of the mentor in the integrated research and training, supervision, and counseling of the applicant. This should include how the mentor will guide the applicant in securing experiences outside of the research experience. Components of this can include, but are not limited to:
 - i. Effective communication, including participation in national conferences, publications
 - ii. Effective funding management, including proposal construction, technology transfer, entrepreneurship, intellectual property, royalties, patents
 - iii. Effective group management, including laboratory management, conflict resolution, student mentoring, negotiation skills
 - iv. Effective job performance, including faculty governance issues, ethics, classroom teaching, growth of the fellow’s professional network
- D) A contingency plan for how the Applicant’s research training will be supported should there be a gap in the mentor’s research funding, and/or the mentor leaves the institution during the proposed award period.

8. Mentor’s Current and Pending Support (template provided; PDF)

The template requests current & pending funding support, to include project title, synopsis/abstract, total and annual funding, percent effort, and if/how any of the funding relates to the applicant’s proposed research project.

9. Mentor’s CV (3 page max, PDF, NIH or NSF formatting accepted)

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10. Applicant's CV (3 page max, PDF, NIH or NSF formatting accepted)

11. Applicant's Official Transcripts or Letter from Institution (PDF format)

- Submit official transcript showing date PhD granted/conferred; or
- Submit a letter, on institutional letterhead, signed by Dean or other authorized signatory, stating the date applicant is scheduled to defend or has defended thesis; official documentation showing date PhD granted/conferred will be required by May 1, 2020.

12. Applicant's Photo (jpg format)

- If awarded, this photo will be posted to our website.

13. Applicant's Verification of US Citizenship or Permanent Residency. (PDF format)

Provide one of the following valid documents:

1. U.S Passport; or
2. Certificate of Naturalization, or
3. Certificate of U.S. Citizenship; or
4. U.S. Driver's License and U.S. Birth Certificate (certified copy); or
5. Green Card (Front and Back).

14. Three Confidential Letters of Recommendation (3 page max, PDF, on institutional letterhead)

Due: September 6, 2019, at 5:00 p.m. Pacific Time

Three (3) confidential letters of recommendation on behalf of the postdoc applicant must be submitted using the online Grant Application System.

These confidential letters of recommendation will not be released or in any way accessible to the applicant.

- Only three letters will be accepted:
 - Letter 1: Current or Sponsoring Postdoctoral Mentor
 - Letter 2: PhD Advisor
 - Letter 3: Additional collaborator, co-advisor, or an expert in the field of the proposed research
- Letters must be on official institutional letterhead, with appropriate signatures.
- Each letter should assess and discuss:
 - Scientific abilities and potential;
 - History of applicant's independent research and creativity;
 - Future potential as an independent investigator; and
 - Justification for supporting the applicant.
- Associates of the Arnold and Mabel Beckman Foundation – to include the Board of Directors, Scientific Advisory Council, Executive Committee, and/or employees – may not submit a letter of recommendation on behalf of an applicant.

Applicants should coordinate with those parties asked to write a letter of recommendation in order to ensure that all letters are received by the application deadline. Letters will not be accepted after the close of the application period. Incomplete applications will be rejected.