



Call for Collaborative Research Proposals in Designing Materials to Revolutionize and Engineer our Future (DMREF) as part of the NSF-BSF Program

As part of the NSF-BSF joint program, the U.S.-Israel Binational Science Foundation (BSF) invites collaborative research proposals in Designing Materials to Revolutionize and Engineer our Future (DMREF), at the U.S. National Science Foundation (NSF).

Synopsis of Program:

DMREF seeks to foster the design, discovery, and development of materials to accelerate their path to deployment by harnessing the power of data and computational tools in concert with experiment and theory. DMREF emphasizes a deep integration of experiments, computation, and theory; the use of accessible digital data across the materials development continuum; and strengthening connections among theorists, computational scientists, data scientists, mathematicians, statisticians, and experimentalists as well as those from academia, industry, and government. DMREF is committed to the education and training of a next-generation materials research and development (R&D) workforce; well-equipped for successful careers as educators and innovators; and able to take full advantage of the materials development continuum and innovation infrastructures that NSF is creating through partnership with other federal and international agencies.

DMREF will support activities that significantly accelerate the materials discovery-to-use timeline by building the fundamental knowledge base needed to advance the design, development, or manufacturability of materials with desirable properties or functionality.

Proposals submitted to this solicitation must be directed by a team of at least two Senior/Key Personnel with complementary expertise. The proposed research must



involve a collaborative and iterative “closed-loop” process wherein theory guides computational simulation, computational simulation guides experiments, and experimental observation further guides theory.

This solicitation represents a crosscutting activity involving the Directorates for Mathematical and Physical Sciences (MPS), Engineering (ENG), Computer & Information Science & Engineering (CISE), and Technology, Innovation and Partnerships (TIP). Additionally, partnership with other federal agencies may lead to an interagency effort. Submitted proposals may be shared with one or more federal partners in the solicitation: Air Force Research Laboratory (AFRL), the Department of Energy’s (DOE) Office of Energy Efficiency & Renewable Energy (EERE), Office of Naval Research (ONR), National Institute of Standards and Technology (NIST), the US Army Combat Capabilities Development Command (DEVCOM) Ground Vehicle Systems Center (GVSC), and the DEVCOM Army Research Laboratory (ARL). Opportunities are also present for collaboration with the United States-Israel Binational Science Foundation (BSF), India’s Department of Science and Technology (DST), the Natural Sciences and Engineering Research Council of Canada (NSERC), and Germany’s Deutsche Forschungsgemeinschaft (DFG).

See the NSF site for further details: <https://new.nsf.gov/funding/opportunities/dmref-designing-materials-revolutionize-engineer-our-future>

General:

1. BSF administers the NSF-BSF program on behalf of the Israel Council for Higher Education (CHE). For fiscal year 2024 CHE has budgeted 63M NIS for US-Israel collaborative research under this program.
2. The NSF-BSF program is not a “special” program and NSF does not set aside money for potential grants. Rather, NSF-BSF proposals are evaluated together with standard NSF proposals in a review process managed by the regular NSF core programs in the participating disciplines. It is essential that the U.S. PI has a clear understanding of the NSF-BSF framework before embarking on proposal preparation.



3. Applications must be developed and written jointly by a team of Israeli and U.S. scientists that hold academic appointments in their respective countries and are eligible to apply for external funding at organizations such as NSF and BSF.
4. Israeli applicants are advised that they should pay particular attention to the NSF evaluation criteria, http://nsf.gov/bfa/dias/policy/merit_review/, which may include requirements such as broader impacts, data management plan etc. These requirements may either be missing in BSF/ISF applications, or have a greatly different meaning (particularly the term ‘broader impacts’) and thus require special attention. **Failure to appropriately address these requirements may be detrimental to the proposal and in the worst case may lead to rejection without review.** Discussion of these requirements with the US PI(s) and jointly addressing these is recommended.
5. The NSF accepts applications only from U.S. scientists and submission to the NSF-BSF program should be made only by the U.S. applicant. The proposal is recognized as an NSF-BSF application by adding the prefixed “NSF-BSF:” to the proposal title. The role of the Israeli applicant(s) and the nature of the collaboration must be described in the different sections of the proposal, e.g. sections with details of work plan, time line etc. **Furthermore, it should be clearly explained why the contribution of the Israeli PI is critical to the success of the proposed study.**
6. For technical reasons only, the Israeli applicant **cannot** appear on the cover page of an NSF proposal. The Israeli PI should be listed as a **non-NSF funded collaborator**, not as Senior Personnel. The Israeli applicant must provide a CV, a budget and budget justification and these will be added as supplementary documentation to the proposal.
7. BSF will adhere to the NSF decision regarding the duration of the project.
8. The DMREF program is expected to accept research proposals biennially in odd-numbered years.
9. A presentation with tips for Israeli scientists who wish to participate in collaborative proposal submission under the NSF-BSF program can be found [here](#)



Eligibility:

1. All inquiries regarding the suitability of the research topic must be made by the U.S. applicant(s) to the relevant program directors at NSF. BSF will not respond to any query regarding topic eligibility.
2. All BSF regulations regarding eligibility of the Israeli applicant(s) and NSF regulations regarding the U.S. applicant(s) will apply to this program.
3. Each Israeli scientist is now permitted to submit up to two NSF-BSF applications each academic year (1 Oct – 30 Sept.). In any case, at any given time an Israeli scientist can only be involved in two proposals/grants simultaneously.
4. An Israeli with an active BSF research grant is allowed to submit an application to any of the NSF-BSF programs.
5. An Israeli with an active NSF-BSF grant is allowed to submit one more NSF-BSF application.
6. It is allowed to submit both to an NSF-BSF program and the regular BSF program, including similar applications. In the event that grants are awarded in both programs, both will be funded, unless, the research applications are mostly similar, or significantly overlap, in which case only the NSF-BSF programs will be funded by BSF.
7. In case of similar NSF-BSF and regular BSF applications, in which the NSF evaluation of the NSF-BSF application was not completed by the time the regular BSF awards are made, the BSF will defer its decision regarding a possible grant to this application, until the NSF-BSF awards are announced.

Evaluation:

1. Proposals will be evaluated by the relevant NSF program, using their criteria and adhering to a Lead Agency Model that underpins several other Israeli binational and



multinational research collaborations. BSF watches over compliance by Israeli applicants, but does not evaluate the scientific merit of the applications.

2. NSF uses a conventional peer review system with ad-hoc (external) reviews for full proposals and subsequent evaluation by expert panels. However, unlike the practice in Israel, panel members serve in an advisory capacity, and final decisions lie with the program officers and NSF management. These post-panel officials may introduce additional considerations such as whether the research topic already has support from the U.S. government, whether support from other NSF programs was sought, etc.
3. NSF program officers inform reviewers and panelists of the special nature of the NSF-BSF partnership and ensure that the Israeli applicant(s) are recognized as Co-PIs and are evaluated alongside their US counterparts. For more detail, please, we refer to the NSF Dear Colleague letter that covers the NSF-BSF program in great detail (<https://www.nsf.gov/pubs/2020/nsf20094/nsf20094.jsp>).
4. If the collaborative research proposal is recommended for an award, then, pending formal approval, the Israeli applicant(s) will receive a grant from the BSF, while the U.S. applicant(s) will receive a grant from the NSF.
5. The award amount for the Israeli applicant is capped at a maximum of \$95,000 per year for experimental programs and up to \$75,000 per year for theoretical or computer-based research, **subject to the availability of funds**. If more than a single Israeli group is involved in the research, then the budget may be increased by up to 50%.
6. Amounts in the BSF system are always in dollars; however, Israeli PIs will receive the money in Shekels. So, the maximum amount per year for the Israeli is capped at 330,000 NIS for experimental programs and up to 270,000NIS for theoretical or computer-based research.
7. In case of similar NSF-BSF and regular BSF applications, in which the NSF evaluation was not completed by the time the regular BSF awards are made, we will defer the decision regarding a possible grant for the BSF application, until NSF had made its funding decision regarding the NSF-BSF proposal.



8. Israeli researchers may take part in the NSF evaluation process as panel members and/or external reviewers.

Submission:

The full proposals will be submitted to the program twice.

Step 1. The U.S. applicant will submit the NSF-BSF proposal following the NSF regulations and submission procedures (https://www.nsf.gov/pubs/policydocs/pappg22_1/index.jsp). **The US applicant's submission to the NSF MUST include the BIOGRAPHY (in NSF format) and BUDGET + BUDGET JUSTIFICATION (in BSF format) of the Israeli applicant under supplementary materials.**

Step 2. The Israeli applicant will submit the identical proposal as a pdf document to the BSF, including all information regarding the U.S. applicant(s), and adhere to relevant BSF regulations regarding proposal submission: see [here](#).

Timetable:

Full proposals should be submitted to the BSF according to the following deadlines:

no later than 5 pm (Israel time) on February 10, 2025. NSF deadline is February 4, 2025.

Applicants are requested to acquaint themselves with the BSF regulation for this NSF-BSF program before they submit applications. The forms and regulations can be downloaded from the BSF website (<https://www.bsf.org.il/funding-opportunities/nsf-bsf-joint-research-grants/the-programs/>).

Questions regarding the suitability of the proposed research for this program should be directed by the U.S. applicant(s) to program officer in the relevant programs at the NSF.



Other questions regarding this call for proposals can be discussed with the BSF staff by mail or by phone (972-2-5828239): Dr. Rachel (Heni) Haring (heni@bsf.org.il ext. 205) or Ms. Yael Dressler (yael@bsf.org.il ext. 203). Questions regarding the online application system should be directed to Ms. Orli Rozenchwajg (orli@bsf.org.il ext. 206).