SC EPSCoR

Phase-0 Program Solicitation

SC EPSCoR Solicitation Number 11-2021

Phase-0 Program Objectives

The goal of the Phase-0 Program is to encourage and support South Carolina small businesses in their proposal development activities to compete effectively for SBIR/STTR Federal funding. The request can be either to support the "*Materials Assembly and Design Excellence in South Carolina*" (**MADE in SC**) initiative funded by the National Science Foundation EPSCoR Research Infrastructure Improvement Track-1 Program and/or the SC Science and Technology Plan, or to be in support of other areas described in the SC Science and Technology Plan (Vision 2025)
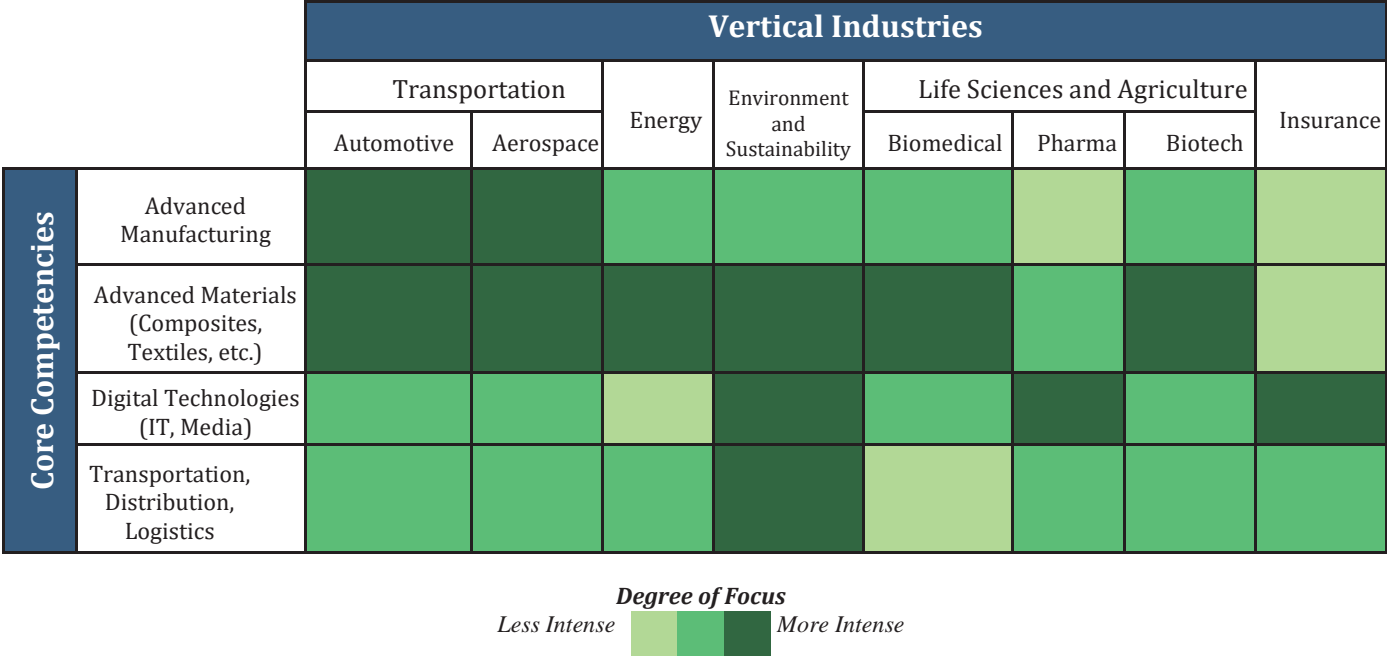
MADE in SC Priorities

The vision of *MADE in SC* initiative is to discover and establish new and sustainable approaches for the design and assembly of hierarchical materials at multiple relevant length scales that service South Carolina's STEM research, education, and workforce needs and invigorate economic development. As part of this program, the Phase-0 program will ***support internships for SC undergraduate students for materials science projects only*** in a functioning entrepreneurial environment to expose them to the world of entrepreneurship. Students must be enrolled in a four-year degree granting program in a SC college or university. The following are the areas of the MADE in SC research, and proposals may address one or more of these topics:

- **Thrust 1** – **Hierarchical Structures with Controlled Optical, Electrochemical, and Magnetic Properties**. The goal of Thrust 1 is to explore the inorganic crystal structure and mesoscale assembly of hybrid inorganic and organic materials to control and tailor their optical and magnetic properties.
- **Thrust 2** – **Stimuli Responsive Polymeric Materials**. The goal of Thrust 2 is to design and develop synthesis strategies for polymers able to respond to external cues.
- **Thrust 3** – **Rational Design of Interactive Biomaterials.** The goal of Thrust 3 is to develop a fundamental understanding of the effect of physical and chemical signals on cellular behavior across a range of length scales, leading to the development of interactive biomaterials.
- **Multiscale Modeling and Computation Core (MCC).** The goal of the MCC is to develop multiscale models and computational tools synthesizing theories, methods, and infrastructure to provide optimized solutions for the materials system. This includes the development of advanced multiscale theoretical foundations, fast algorithms to handle high throughput computations, high resolution/fidelity imaging and visualization, and big data analytics including uncertainty quantification.

South Carolina Science and Technology Plan

Proposals may address one or more of the strategic areas identified in *Vision 2025 Advancing South Carolina's Capacity and Expertise in Science and Technology.* In this document, the South Carolina Science and Technology Task Force cited four general areas for advancement of South Carolina's economy into more technology-driven areas: promotion of research and development, growth of the health, science and technology workforce, enhancement of education and outreach, and stimulation of economic development. South Carolina has excelled in the development of new products and processes to maintain and advance the state's global competitiveness in Advanced Manufacturing; Advanced Materials; Digital Technologies; and

Transportation, Distribution, and Logistics. By enhancing these core competencies, South Carolina can foster the growth of four vertical industries – Transportation; Energy; Life Sciences and Agriculture; and Environment and Sustainability. The Figure below shows the competencies and their relation to vertical industries (taken from Vision 2025).

		Vertical Industries							
		Transportation		Energy	Environment and Sustainability	Life Sciences and Agriculture			Insurance
		Automotive	Aerospace			Biomedical	Pharma	Biotech	
Core Competencies	Advanced Manufacturing								
	Advanced Materials (Composites, Textiles, etc.)								
	Digital Technologies (IT, Media)								
	Transportation, Distribution, Logistics								

Degree of Focus

Less Intense *More Intense*

Award Information

Award Type: Grant

Maximum Funding Amount Per Award: $6,000.00

Maximum Funding Amount for Undergraduate Student Internships: $3,000.00

Award Duration: 12 months

Estimated Number of Awards: Depends on quality of proposals and available of funds.

Projected Start Date: April 25, 2022

Eligibility

- Eligibility for Phase-0 funds is limited to South Carolina-based small businesses that are American-owned, for-profit, with fewer than 500 employees.
- If the proposing entity is more than 50% owned by another entity or entities, the majority owner(s) will be considered the proposing entity and is subject to the basic qualifications and consideration rules as outlined in the solicitation.
- Non-Compliant former Phase-0 awardees are not eligible. Former Phase-0 Awardees are not eligible to apply in this funding cycle if their former projects were not closed out in a timely fashion, funded project deliverables were not met, final project reports and requested documentation not submitted, or were non-responsiveness to requests from the State Office.

Deadline

Full Proposal – Thursday, February 24, 2022 – 5:00 PM EST

Full Proposal Content

The sections below represent the body of the proposal. Failure to submit the required sections will result in the proposal not being accepted or being returned without review. *Note: Where indicated, the number of pages refers to the maximum number of pages allowed and must not be exceeded. Proposal Format: Use 1"-inch margins, Times New Roman, and font size not smaller than 10 or larger 12.*

1. **Proposal Cover (2 Pages)**

   Use the Proposal Cover form in Appendix A.

2. **Project Summary (1 Page)**

   The Project Summary should be written in the third person, informative to other persons working in the same or related fields, and, insofar, as possible, understandable to a lay reader. Describe the potential outcome(s) of the proposed activity in terms of a product, process, or service. Include clearly delineated sections: Intellectual Merit and Broader/Commercial Impact. The Intellectual Merit section should describe the intellectual merit of the proposed activity. Briefly describe the technical hurdle(s) that will be addressed by the proposed R&D, the goals of the proposed R&D, and a high-level summary of the plan to reach those goals. The Broader/Commercial Impact section should discuss the expected outcomes in terms of how the proposed project will bring the innovation closer to commercialization under a sustainable business model. Briefly describe the potential commercial and market impacts that such a commercialization effort would have if successful and, if appropriate, potential broader societal impacts of the innovation.

3. **Project Description (6 Pages Maximum)**

   The Project Description should clearly articulate its relation and applicability to one or more of the *MADE in SC* priorities and/or the SC Science and Technology Plan. The Project Description section should have the following sections:

   a. **Objectives of the Proposed Work and Relevance**

      State the objectives of the proposed work, its significance, and how it relates to the *MADE in SC* priorities and/or the SC Science and Technology Plan outlined in the Program Objectives section.

   b. **Prior Relevant Research**

      Describe previous research relevant to the proposed work. This should not be limited to the work done by the business or the investigators associated with the proposal. A description of the current need in the marketplace, anticipated target market, and how the innovation will address market needs should be included, along with a summary of the competitive landscape (e.g., how does the research innovation compare with competition currently on the market or in development).

   c. **Research and Development Plan**

- Describe the business including R&D activities, current and previous commercial technologies, IP held by the business or its principal investigators, and the management structure. Also describe plans for administering the Phase-0 award.
- Describe the proposed research innovation and its applicability to the targeted SBIR/STTR solicitation(s). Include scientific explanation and how the proposed technology will satisfy the related requirements. If pursuing an SBIR/STTR Phase-1, provide description of the planned feasibility study to be undertaken during the Phase-1 award.

d. Undergraduate Student Internship – *Materials Science Projects Only* (Optional)

Proposals must address this section if requesting supplementary funding to support undergraduate student intern(s) in the proposed project. Internships must support one or more of the research clusters outlined in the MADE in SC Priorities section. **CITI Responsible Conduct of Research (RCR) must be submitted to the State Office prior to the undergraduate students working on project.**

- Identify the research cluster the internship will support (e.g., MCC, Thrust 1, Thrust 2, Thrust 3).
- Provide a description of the location and environment of the proposed internship, student intern recruitment and selection process, start and end dates of the internship, student intern job duties and other engagement activities, and expected hours of work per week.
- Describe plan for student intern mentoring and plan to evaluate the success of the internship.

4. Project Milestones Chart

Include a project Milestones Chart in Appendix C. For each quarter, list the activities that will be performed and the expected accomplishments. These should be consistent with the rest of the proposal. This WORD document must be completed then converted to PDF format before uploading in the SC EPSCoR Portal.

5. References Cited

Reference information is required. Each reference must include the names of all authors (in the sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication.

6. Biographical Sketches

A biographical sketch is required for the Principal Investigator and other senior personnel. NSF format is required.

- **Professional Preparation** – undergraduate and graduate education and postdoctoral training (including location)
- **Appointments** – A list, in reverse chronological order, of all the individual's academic/professional appointments beginning with the current appointment.
- **Products** – A list of: (i) up to five products most closely related to the proposed project; and (ii) up to five other significant products, where or not related to the proposed project

- **Synergistic Activities** – A list of up to five examples that demonstrate the broader impact of the individual's professional and scholarly activities that focuses on the integration and transfer of knowledge as well as its creation.

For more information on NSF format, visit
https://www.nsf.gov/bfa/dias/policy/biosketch.jsp

7. **Results from Prior SC EPSCoR Support (1 Page per Award)**

The purpose of this section is to assist reviewers in assessing the quality of prior work conducted with current or prior SC EPSCoR Program funding. If the PI on the proposal has received an award as PI from the SC EPSCoR Program since January 1, 2017, the following information must be provided:

- Title of the project, start date, date completed, and award amount.
- Summary of the results of the work completed, including accomplishments, supported by the award

If the project was recently awarded and therefore no new results may exist, briefly describe the proposed work.

8. **Budget**

Use the Budget forms in Appendix B.

9. **Budget Justification (2 Pages)**

The budget justification must be composed of no more than two pages and must include the following sections:

- Senior Personnel
- Other Personnel
- Fringe Benefits
- Student Internship (Material Science Projects Only) (if requested)
- Materials and Supplies
- Equipment
- Domestic Travel Support
- Other Direct Costs

10. **Current and Pending Support**

The Principal Investigator and Co-PI must complete Current and Pending Support document in Appendix D.

11. **Letter of Support (Two Letters Maximum per Proposal)**

Letters of Support with specific commitments from organizations that will provide resources for the project may be submitted with the proposal. Examples may include commitments to collaborate on one or more aspects of the project; share data or facilities; or provide organizational support for specific activities stated in the proposal.

12. SBIR/STTR Federal Solicitation being Pursued

Proposals must contain *a complete PDF copy of each targeted SBIR/STTR Federal solicitation* identified in the proposal as the solicitation being pursued if a Phase-0 award is made. This must be downloaded from the federal agency website and then uploaded with the Phase-0 proposal. *SBIR/STTR Federal proposal submission dates must be on or after April 25, 2022. Due dates prior to April 25, 2022 are non-negotiable.*

Budget Information

Funding for the Phase-0 Program is intended to support proposal development activities and not intended to support small business infrastructure.

- The Phase-0 Program is a cost-reimbursement program and awardees will be reimbursed for *paid expenses NOT incurred expenses*. Small business infrastructure costs are not supported by this program. Therefore, the following costs are unallowable:
  - o Computers, laptops, printers, software that is not project specific
  - o Rent for office space, utilities, facility maintenance, membership fees, etc.
- The budget requested *may not exceed $6,000.00 per proposal.*
- Total salaries, wages, and fringe benefits requested for all project personnel (Section A, B, and C on budget page) may not exceed $1,200.00 of the total Phase-0 budget requested.
- Total salaries plus consultant fees may not exceed $3,000.00 or 50% of the total budget requested.
- *Up to an additional $3,000 can be requested for a student internship (Materials Science Projects only).* The internship funds can only be used for the student internship and cannot be later re-budgeted into any other budget category. Support for an undergraduate student intern must be entered on the budget sheet in the column labeled student internship*.*
- Travel support is allowed only to SBIR/STTR Conferences and to meetings with Project Officers at Federal Agencies. Travel expenses may be claimed only for the PI and Senior Personnel listed in the proposal. Reimbursement for travel expenses including per diem, mileage, lodging, and transportation will be in accordance with SC EPSCoR policy on domestic travel support posted on the SC EPSCoR website at Travel Policy.
- Indirect costs are not allowed.
- Awardees must ensure that costs claimed under SC EPSCoR Program grants are allowable, allocable, and reasonable.

Submission Instructions

PIs should submit their proposals via the SC EPSCoR Proposal Submission Portal at https://scepscor.org/Solicitations/portal/index.php or click the login button on the SC EPSCoR main webpage. If not previously registered in the Portal, please follow the instructions on the main Portal page to register.

Proposal Review Process

Proposals will undergo two levels of review:

a. Administrative Review. This review will determine which proposals will advance to the next level of review. This review is based on the whether the submitted material is complete and the current SC EPSCoR forms are used. Proposals that do not pass the Administrative Review will not be considered for funding.
b. Proposal that successfully pass the Administrative Review will be sent to external evaluators for review based upon the following:

- The proposal's technical merit and its relevance to *MADE in SC* and/or SC Science and Technology Plan.
- The extent to which the proposed activity suggests innovative and creative concepts.
- How well conceived and planned is the proposed activity.
- The potential of success in executing the proposed activities.
- The potential that the project will lead to SBIR/STTR funding.

Award and Reporting Requirements

- The SC EPSCoR State Office reserves the right to conduct site visits during the project period for evaluation and reporting purposes.
- Awardees are expected to provide required information and documentation to the SC EPSCoR State Office staff and External Evaluator as needed.
- A final project report will be due no later than 60 days after the end of the award.
- Projects with student interns will be required to include student demographic information and 1-page PDF report from the student intern about their internship experience.
- Since this is a proposal development program, a copy of every SBIR/STTR Federal submission confirmation page identified in the proposal must be submitted to the SC EPSCoR State Office. If the submission to the federal agency results in an SBIR/STTR award, a copy of the Notice of Award must be submitted to the SC EPSCoR State Office.

Contact Information

General inquiries regarding this program should be made to:

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