



Call for Seed Proposals Funded by the Wisconsin Materials Research Science and Engineering Center (MRSEC)

Date for submission: Friday, August 14, 2026, 12 pm

The Wisconsin MRSEC

The Wisconsin Materials Research Science and Engineering Center (MRSEC) funds Seed projects to enhance the ongoing materials research and education thrusts of the Center and to support exploration of transformative new directions. Present research activities in the MRSEC encompass the experiments and simulations to understand and control mobility in liquids and glasses and to create new nonequilibrium magnetic states in single crystal membranes using strain and ultrafast excitation. The two Interdisciplinary Research Groups (IRGs) of the MRSEC are IRG 1: Mobility in Liquids and Glasses, led by Paul Voyles and Izabela Szlufarska, and IRG 2: Magnetism in Strained Membranes, led by Jason Kawasaki and Uwe Bergmann. The Integrated Education and Outreach Team (IEOT) is led by Anne Lynn Gillian-Daniel and Wendy Crone.

Goals of the MRSEC Seed Program

The MRSEC Seed program plays a key role in the vitality and evolution of the Wisconsin MRSEC by expanding participation and introducing new research directions. The strategic goals of the Seed program are to support: 1) high-risk, high-payoff research projects, 2) projects that advance the goals of the MRSEC, 3) early career faculty and faculty which expand the disciplinary reach of the center, and 4) emerging interdisciplinary research areas with potential to nucleate new research groups. Successful seed project outcomes include: 1) ongoing external funding for the project from any source; 2) incorporation of the seed effort into an existing MRSEC IRG; or 3) nucleation of a new IRG for the next recompetition of the MRSEC in 2028. A list of previous seed projects and their outcomes may be found at the end of this call.

Call for Proposals: IRG Planning Grants

This year's competition will focus on outcome 3, nucleating new IRGs for the next recompetition proposal to the National Science Foundation (NSF). Based on previous competitions, we anticipate the NSF process will start with a preproposal in June 2028 for a successfully recompeted center starting September 1, 2029. The MRSEC will be looking for either two or three new IRGs for the June 2028 preproposal. The current IRG 1: Mobility in Liquids and Glasses will not recompete in its current form. IRG 2: Magnetism in Strained Membranes may be eligible to recompete with an updated research scope and team.

A MRSEC IRG brings together 8-10 investigators with a budget of ~\$1,000,000 / yr to address a grand challenge in materials science. An IRG must combine from diverse disciplinary and scientific perspectives, and it may have at most one or two members from outside UW-Madison. The MRSEC program defines materials science broadly as the combined scope of all of the Topical Materials Research Programs at NSF.¹ Research which is best aligned with other divisions or directorates at NSF is out of scope for MRSEC. IRGs usually combine experiments and theory, covering synthesis, characterization, property measurement, fundamental theory, simulations, and artificial intelligence. Additional information and NSF review criteria for IRGs may be found in the 2025 MRSEC program solicitation (NSF 26-500),² although the details of the 2028 solicitation (for example the emphasized research areas) are likely to be different.

The MRSEC will fund small IRG planning grants this year (~\$100,000 for one year) to support the development of teams for a planned internal IRG competition next year. IRG teams selected for the next competition will be supported as SuperSeeds (~\$300,000 / yr for two years recompetition) to provide

¹ <https://www.nsf.gov/funding/opportunities/dmr-tmrp-division-materials-research-topical-materials-research>

² <https://www.nsf.gov/funding/opportunities/mrsec-materials-research-science-engineering-centers/nsf26-500/solicitation>

preliminary results for the competition and momentum for a successful launch as IRGs in the recomputed center. As a result, special emphasis will be placed in the review this year on the potential of the project to grow into a successful IRG.

Proposals

The budget for a project submitted in response to this call should be < \$100,000 for one year. The anticipated project period is September 1, 2026 to August 31, 2027. Allowed costs include support for graduate student research assistants or postdoctoral researchers, materials and supplies, and equipment access fees. Costs for IRG team, collaboration, and proposal development are allowed and encouraged. Faculty and staff salaries and equipment are not allowed. Research travel (*e.g.* to conferences) is not allowed as a seed expense, but seed-supported students and postdocs have access to the MRSEC Honored Scholar Travel Award program, which funds conference and other research travel. Travel in support of IRG development is an allowed expense.

Investigators may be a funded PI or co-PI on only one seed proposal. Appearing as an unfunded team member on additional proposals is allowed. Faculty with ongoing funding from the MRSEC through one of the current IRGs may participate in or lead an IRG planning seed proposal, but additional funding will be scrutinized. The MRSEC anticipates funding up to four Seed projects this year.

The proposal description is three pages, not including references. In the first two pages, describe the grand challenge in materials science the eventual IRG will address and its proposed approach, with an emphasis on national competitiveness and uniqueness. Describe the current IRG team. If the team is not yet complete, describe its additional needs. Discuss the eventual IRG's anticipated scientific and technological outcomes and their impacts. In the last page, describe the activities that will be undertaken with support from the IRG planning seed grant. These activities may include but are not limited to initial research toward the materials science grand challenge and activities and events to foster the larger IRG team and develop the IRG proposal.

Proposals must include a budget and budget justification (budget template attached), and a NSF-format biosketch for each funded participant. References may be submitted in a separate section with no page limit. Proposals must be submitted by **noon, Friday, August 14** by email to Kerri Phillips (kphillips22@wisc.edu).

More Information

Further information about the MRSEC is available at mrsec.wisc.edu. Applicants are strongly encouraged to contact MRSEC Director Paul Voyles (paul.voyles@wisc.edu), IRG/IEOT leaders (see website), and other MRSEC participants to discuss potential projects. Please contact Kerri Phillips (kphillips22@wisc.edu) with administrative questions.

MRSEC Seed Budget and Budget Justification Template

	Personnel	
1	Graduate student (50%)	\$ 27,333
2	Fringe benefits	\$ 4,920
3	Total Salaries and Benefits	\$ 32,253
4	Other Direct Costs	
5	Materials and Supplies	\$ 5,000
6	Tuition remission	\$ 12,000
7	Total Other Direct Costs	\$ 17,000
8	Total Direct Costs [3+7]	\$ 49,253
9	Modified Total Direct Costs [8-6]	\$ 37,253
10	Indirect Costs (55.5% MTDC)	\$ 19,744
	Total Funds Requested [8+10]	\$ 68,997

Personnel

Funds are requested to support one graduate student at 50% appointment for one year of the project. The student will work with Professor Jones on synthesis and characterization of nanomaterials. Fringe benefits are calculated using the FY2022 rate for research assistants (18%).

Materials and Supplies

Funds are requested for starting materials, reagents and solvents, and chemicals for electrochemical synthesis and characterization (\$4,000). The project requires use of NMR, mass spectrometer, and scanning electron microscope. Thus, funds are requested to cover user fees to access these instruments (\$1,000).

Tuition Remission

Tuition remission is requested at the rate of \$12,000 per year for a full time (33.33% appt. or greater) graduate student.

Indirect Costs

An F&A rate of 55.5% is applied to Modified Total Direct Costs (MTDC). The MTDC is the total direct costs less tuition remission.

Notes:

1. The Seed Program does not support faculty salary or equipment.
2. The Seed Program generally does not support travel. Seed-supported students and postdocs may apply for separate funding for travel from the MRSEC. Funding may be requested for travel in support of IRG proposal development with appropriate justification.
3. Please adjust the student salaries and fringes rates as appropriate for the proposed grant period.

Selected Completed MRSEC Seed Projects, 2017 - 2023

Title	Investigators	Budget	Year	Outcome
Strain Engineering of Heusler Thin Films and Heterostructures	PI: Jason Kawasaki co-I: Dane Morgan	\$69k	2017	Superseed, then new IRG
Molecularly Doped Topological Photonic Materials	PI: Randy Goldsmith Co-I: Zongfu Yu Co-I: Paul Campagnola	\$134k	2018	Superseed, then external support: Schmidt Futures
High-Throughput Design of Responsive Liquid Crystal Materials & Scalable Machine Learning Algorithms	PI: Victor Zavala co-I: Nick Abott	\$70k	2018	External support
Potential Energy Landscape, Two-Level Systems, and the Boson Peak in Silica	PI: Bu Wang Co-I: Izabela Szlufarska	\$68k	2019	Incorporated into IRG 1
Characterization of Materials in Extreme Environments Using Quantum Probes.	PI: Jennifer Choy Co-I: Adrien Couet	\$75k	2020	External support: DOE BES
Heterogeneous atomic centers as tunable materials for catalysis and quantum information	PI: Marcel Schrier	\$78k	2020	External support: Packard Foundation
Breaking Through the Substrate Bottleneck for Ultra-Efficient Visible Emitters: Growth Optimization of High Quality InGaN Buffers on Sputtered and Thermally Crystallized ScAlMgO ₄	PI: Shubhra Pasayat Co-I: Paul Evans	\$69k	2021	External support NSF
Molecular Engineering in Robust Glassy Organic Framework Ion-conductive Membrane with High Ion Conductivity and Selectivity	PI: Dawei Feng	\$78k	2021	Startup company and external support
Finding the Best Oxide-Wide Bandgap Semiconductor Interface; Integration of complex Oxides with Wide Bandgap Semiconductors via Crystal Stacking	PI: Chirag Gupta Co-I: Chang-Beom Eom	\$86k	2022	External support pending
Understanding Metal Agglomeration in Zeolite Micropores under Reaction Conditions	PI: Siddarth Krishna Co-I: Paul Voyles	\$81k	2022	External support: ACS PRF