

Working with the NIST Materials Science and Engineering Laboratory (MSEL)

Collaborations and Partnerships to Advance Materials Measurement Science and Technology

Overview

MSEL forms partnerships with external parties when such relationships will advance materials-related measurement science and technology of importance to MSEL stakeholders in industry and the public sector.

MSEL has diverse mechanisms to undertake cooperative relationships. These include formal and informal means, some of which can accommodate legal issues such as intellectual property generation and protection. Some of these mechanisms are discussed below.

MSEL strives to establish relationships that result in advances with broad scientific impact in materials measurements, and which maintain NIST's longstanding role and reputation as a neutral partner. In this sense, MSEL seeks to frame research cooperation in ways that respect intellectual property (IP) issues, and produce results that are widely and publicly available.

MSEL Priorities for Establishing Partnerships

For both formal and informal relationships, MSEL establishes partnerships that advance our research priorities, including:

- Relevance to the MSEL mission;
- Alignment with NIST and MSEL Investment Priority Areas;
- Synergy with current or emerging MSEL programs; and,
- Potential impact on National needs and critical measurement science.

A good way to learn more about the MSEL mission, priorities and technical programs is to visit the MSEL website (see below). In addition, written program descriptions and strategic vision documents can be requested. MSEL contributes strongly to the NIST Investment Priority Areas of Energy, Environment, Healthcare, and Physical Infrastructure. To learn more about NIST priorities see www.nist.gov/director/planning/planning.htm.

Scientific Collaboration

MSEL encourages informal collaborations with other scientific institutions, carried out between individual scientists or small teams, that leverage interests and research aims common to both parties. These collaborative efforts focus on precompetitive scientific challenges, with fully publishable results. When appropriate, short term personnel exchanges can be used to accomplish collaborative goals. Expected outputs and technology transfer routes include coauthored scientific publications and presentations. To learn more about specific research projects in MSEL, and find related scientist contacts, look to our website, which has detailed descriptions of our complete project portfolio.

NIST led Consortia

Certain measurement challenges can impact a number of stakeholder institutions, or cross-cut several technology sectors. In such cases, NIST can establish a consortium in which multiple partners join to solve problems of mutual interest. MSEL employs two consortium models:

Conventional Model: This type of consortium involves research objectives that are predetermined by consortium members in cooperation with NIST. Consortium related research can generate IP, which can be protected if a Cooperative Research and Development Agreement is in place.

Open Source Model: Developed by MSEL for the NIST Combinatorial Methods Center (www.nist.gov/combi), this type of consortium is served through a flexible project mix, designed by NIST researchers with consortium members to address rapidly evolving measurement challenges. Expediency is achieved by mitigating IP issues, focusing on precompetitive problems, and proactively transferring research results to all consortium members.

In each of these cases, proactive participation by consortia partners is essential to the success of the enterprise. If you are interested in proposing a topic for a consortium, you may suggest it via the contact information below; in doing so it is helpful if you can provide a list of parties who may be interested in participating.

Grants and Cooperative Agreements

Each year, MSEL funds a small number of external grants and cooperative agreements, which are competitively awarded to universities and other institutions to conduct mission relevant research and services, including conference support. Funded institutions often arrange personnel exchanges to accomplish research goals. Proposals are accepted each year under the NIST Measurement Science and Engineering Research Grants Program (www.grants.gov).

Cooperative Research and Development Agreements (CRADA)

A CRADA is a formal legal agreement to cooperate on research with predefined objectives. Within the NIST CRADA program, researchers from MSEL and an external institution work together to overcome specific measurement obstacles to the development and use of materials. The CRADA mechanism can protect the IP rights of both NIST and its partner. To learn about MSEL research directions around which a CRADA may be established, visit our website, learn about our programs, and contact the appropriate MSEL Division Chief.

Making Use of NIST and MSEL Facilities

There are a number of opportunities for industrial, government and academic researchers to use NIST's world-class, often unique, experimental facilities. Key examples include the NIST Center for Neutron Research

(www.nist.gov/ncnr), which has user facilities for neutron based measurements, and the Center for Nanoscale Science and Technology (cnst.nist.gov), which has user facilities for nanofabrication and nanoscale characterization equipment. Both of these facilities accept user proposals on a rolling basis.

In partnership with the Department of Energy, MSEL has established three NIST beamlines at the National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory that are part of the User Facility on this site. The NIST beamlines offer a suite of synchrotron-based x-ray spectroscopy measurement capabilities, including near-edge x-ray absorption fine structure spectroscopy and x-ray photoelectron spectroscopy. For more information on this facility, contact Daniel Fischer (daniel.fischer@nist.gov).

In addition, the MSEL Divisions have specialized laboratory equipment that may be available for use by external researchers through collaborative arrangements. To learn more about specific equipment in MSEL and equipment contacts, see the facilities description pages on our website (www.nist.gov/mse/facilities.cfm).

Internships, Guest Researchers and Extended Industry Visits

MSEL hosts post-doctoral researchers as well as more senior-level scientists and engineers from universities, industry and other government institutions worldwide to work in collaboration with MSEL scientists. The duration of the stay at NIST can vary from several months to five years, and can involve financial reimbursement. Opportunities vary from year to year, but appointments and visits are established to advance specific MSEL research objectives. The best way to learn about current opportunities is to visit our website, learn about our programs, and contact appropriate project and program leaders.

Contact

MSEL Website: www.nist.gov/mse

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