



RIT MUNSELL COLOR SCIENCE LABORATORY (MCSL) MISSION

The Munsell Color Science Laboratory was founded at the Rochester Institute of Technology (RIT) in 1983 through a gift from the Munsell Color Foundation, Inc. The laboratory is part of the Chester F. Carlson Center for Imaging Science in RIT's College of Science. It was created, and continues to operate, with the vision of being the preeminent academic laboratory dedicated to color science education and research and the preferred source of educated color scientists for industry, academia, and government. The following four objectives guide the MCSL faculty and staff in their endeavors to fulfill this vision.

- 1) To provide undergraduate and graduate education in color science,*
- 2) To carry on applied and fundamental research,*
- 3) To facilitate spectral, colorimetric, photometric, spatial, and geometric measurements at the state of the art, and*
- 4) To sustain an essential ingredient for the success of the first three — namely, liaison with industry, academia, and government.*

This document is intended as a guide for MCSL faculty and staff and to be shared with sponsors and potential sponsors to facilitate efficient creation of proposals and research agreements.

Why Sponsor Research at RIT MCSL?

Some MCSL research funding comes from government agencies and private foundations whose mission is the support of academic research. However a large fraction of MCSL research funding comes from industrial sponsors. Why do industrial sponsors decide supporting MCSL research is a good investment? What are the benefits to the research sponsor?

Corporate research sponsors benefit in many ways. First, they are supporting education and the future of the field of color science. Support in the form of gifts or grants can also be considered a charitable contribution. Even on unrestricted grants and gifts, the sponsor benefits by developing a close working relationship with the MCSL faculty, staff, and graduate students. This includes helping design research projects, being involved with the experiments as they take place, and reviewing and contributing to publications before they become widely available to the public. These relationships with graduate students, in particular, often lead to outstanding recruiting opportunities that allow the sponsors to ultimately improve their own staff. Sponsors are also acknowledged on all publications and presentations arising from the project and in the MCSL Annual Report. The research relationships with MCSL scientists often benefit the sponsors on other projects as they have ready access to MCSL expertise on a regular basis. With research contracts, there are additional benefits. These include project deliverables such as source code, algorithms, specific data, hardware, etc. In some cases, if a patent arises from the project, the sponsor might have specific licensing privileges.

Visiting scientists have the additional benefits of spending extended periods of time at MCSL. This allows them to learn from all the faculty, staff, and students and to become involved in a variety of research projects not limited to just their own specific interests. The professional and personal relationships developed by visiting scientists in their years at RIT often continue on for decades thereafter.

Student Centeredness

All research projects and funding should be focussed on the lab's main mission; the advancement of student education. The goal of research funding is first to support students and then to produce

publishable research that enhances the lab's academic reputation and makes meaningful contributions to the field. This serves both the students and the field of color science and aids in attracting future graduate students and funding for their projects. Ultimately, the objective is to advance the field of color science and technology.

Types of Funding

MCSL research is funded through four different mechanisms, *gifts*, *grants*, *contracts*, and *endowments*. *Gifts* are completely unrestricted support of research in a given topical area and have no specified deliverables. They are not subject to RIT Facilities & Administrative (F&A, "overhead") costs. A typical unrestricted gift of \$50,000/year would be adequate to fund a graduate student research project. *Grants* are more specific in the definition of the research project goals and objectives, but they still have no specific deliverables. Grants are subject to RIT F&A costs. Typical grants are about \$125,000/year to support the work of a single graduate student. *Contracts* support a specific research project with defined deliverables (*e.g.*, experimental data, algorithms, images) and timelines. Contracts are also subject to RIT F&A costs and generally require significant amounts of technical staff time to assure timely completion of deliverables. Contracts might also include various forms of intellectual property agreements at the discretion of the PI and in consultation with the sponsor and RIT. Typical contracts are on the order of \$175,000/year. *Endowments* are gifts that are invested to have an annual return to the lab in perpetuity. Generally the returns are assumed to be 5% of the principle each year. Thus an endowment gift of \$1,000,000 could provide a \$50,000/year fellowship to support graduate student research.

Another funding mechanism is the *MCSL Visiting Scientist* program. Visiting scientists typically spend two years at the lab with full support from their employer as well as providing a research support fee (currently \$75,000/year) adequate to fund a graduate student project and offset costs.

RIT F&A Costs

RIT Facilities and Administrative (F&A) costs are charged at a rate of approximately 43.3% of the direct costs for each grant or contract. Capital equipment and tuition costs included in grants and contracts are not subject to F&A costs. F&A funds are used to provide the infrastructure required to house research activities on campus.

Publication of Research

Without exception, only openly-publishable research is performed within the Munsell Color Science Laboratory with the intent of open interchange and publication to advance the field. This has been the lab's guiding principle since its founding in 1983 and allows free operation with students, visitors, and funding from a variety of companies and nations. Sometimes existing IP or proprietary data is shared to facilitate efficient completion of a non-proprietary project. In such cases, all rights to the existing IP remain with the original owner. On occasion, reasonable delay (*e.g.*, three to six months) of publication can be negotiated to assure the sponsor first access to research results. By RIT policy the existence and sponsor of all externally funded research projects are matters of public record. No undisclosed research is performed within MCSL and all students, faculty, and staff have open access to ongoing projects.

Intellectual Property (IP)

Any decisions to pursue IP will not interfere with the primary mission of the lab to educate students and publish scientific results. Intellectual property creation is not the goal of MCSL research, but might occur in the course of certain projects. The decision to pursue patents, or to simply publish results, is the domain of the project's faculty principal investigator (PI) in consultation with the sponsor and others collaborating on the project. It is at the discretion of the faculty PI to determine the type of IP agreement within the range allowed by RIT policies.

In contracts containing IP agreements, a variety of arrangements are made through negotiation with the sponsor. In instances where IP might arise, a typical agreement might include the following four main points.

1. IP created by RIT employees is RIT property. IP created by sponsor employees is property of the sponsor.
2. IP resulting from joint work will be owned jointly by RIT and the sponsor with no accounting to the other. The sponsor is given first rights to negotiate an exclusive license.
3. RIT will file patent applications at the sponsor's request and expense.
4. All licenses to sponsor include retained rights for future RIT non-commercial research and education.

Alternatively a research agreement can be put in place that specifies that, for the particular research project in question, no IP will be pursued by either the sponsor or RIT and the RIT research results will be put into the public domain through publication.

If one of the above default alternatives is not appropriate, it is possible to negotiate other IP agreements.

Faculty Role

Ultimately it is the role of faculty to assure the quality and appropriateness of MCSL research. Thus, the MCSL faculty are solely responsible for all research proposals, grants, publications, and student advising. As a group the faculty will facilitate the environment and procedures described herein. While an MCSL faculty member will be the PI on all funded projects, staff scientists can be co-PIs.

Coordination and Collaboration

MCSL has a large and talented team of faculty, staff, and student researchers. Many projects can benefit from full utilization of this team through free and open exchange of results, tools, and ideas to the benefit of all projects. This begins at the proposal development stage and continues through to final publication of results. Thus many projects will have co-PIs in addition to the graduate students. These collaborative activities will be coordinated by the MCSL Director who will review and file a copy of each submitted proposal and circulate as appropriate. In addition MCSL researchers often collaborate with colleagues in the Center for Imaging Science, throughout RIT's College of Science, and in RIT's other Colleges such as Imaging Arts & Sciences, Computing & Information Sciences, Engineering, and Liberal Arts. Collaborations are also developed with other universities around the world.

Ongoing Review

All research proposals, visiting scientist/scholar/student proposals, and IP agreements, are forwarded to the MCSL Director. They will be reviewed for consistency with MCSL and RIT research procedures,

placed on file for future reference and review, and circulated to others within MCSL involved in related projects. This advisory review process is to assure efficient communication, that there are no conflicts with existing projects and that proposed projects are financially viable.

RIT Research Policies

The procedures outlined in this document are in addition to those of Rochester Institute of Technology, which can be found at <www.research.rit.edu>. More information on the Munsell Color Science Laboratory can be found at <mcsl.rit.edu>. General information on research at RIT can be found at <www.rit.edu/research>.

What's Next?

For more information on how to sponsor collaborative research with MCSL feel free to contact our Director, Mark Fairchild (mdf@cis.rit.edu) or any of the MCSL faculty. We're happy to discuss potential projects on any aspect of color science and believe you will find it mutually beneficial to work with us and our outstanding students. A review of recent MCSL research can be found in our annual report, available at <<http://www.cis.rit.edu/mcsl/about/AnnualReports.php>>.