

VI. MANAGEMENT

1. ORGANIZATION

a. Changes

While year-3 was a time of change in terms of faculty and institutional membership, year-4 has continued the reorganization process as we enter a more mature phase of research operations. In particular, preparing of our Phase 2 renewal proposal in fall 2005 prompted the CMDITR to clarify and tighten its research agenda. Rather than wait until 2007, we have begun implementing our new Research Plan in the current year. The Plan is elaborated in our current Strategic Plan (see part I of Context Statement) as well as the Research Chapter of this annual report. The CMDITR's new Research Plan heeds the advice of our 2005 Site Visit Report and calls for a cleaner project structure, better definition of CMDITR's role in device development, and increased emphasis on industrial collaboration to promote technology transfer. Other organizational changes reflect adoption of a more functional Management Team structure and routine changes in personnel. We summarize these changes below.

- Changes based on new Science and Technology Plan

The Center retains two primary research thrusts and two Thrust Leaders (Jen and Kippelen), but eight discrete projects have now been identified, each with its own Project Leader (1.1 Jen, 1.2 Hayden, 2.1 Perry, 2.2 Delfyett, 3.1 Norwood, 3.2 Lipson, 4.1 Wilson, 4.2 Kippelen). Project leaders share the responsibility for holding rotating research meetings by videoconference. We note that our eight project leaders work at six different partner universities, and four come from underrepresented groups. We have also formalized oversight of the Center's Shared Instrumentation Facilities (SIF) by designating two funded PIs to head this important resource (Chen and Norwood).

- More functional Management Team (see organization chart in Appendix B)

Faculty Associate Directorships have been reassigned to increase functionality of Center Management in core program areas. For example, to refine our Research Plan and strengthen our Industrial Affiliates Program, we have created the new post of Associate Director of Technology and Knowledge Transfer and assigned this role to Prof. Nasser Peyghambarian. Three additional faculty have been recruited to help Larry Dalton co-lead in the diversity building efforts of the Center (Black-NSU, Mecher-UW, and starting in fiscal year-5, Graham-GT). Professor Phil Reid (UW), winner of numerous awards for his teaching, has taken over the reins as faculty AD of Education. Lastly, we have formalized Prof. Seth Marder's leadership role in the Center by appointing him Deputy Director.

- Director of Education

Professor Deborah Illman took over for Dr. Simon Jones as full-time Director of Education in September 2005, but she opted to leave the Center in February 2006 to focus on a program-wide project to publicize the unique contributions of NSF Science and Technology Centers in the United States. Dr. Jones (still at GT) and Dr. Michael Bruck (UA) stepped up to fill the void in Deborah's absence. The Center is currently trying to fill this position and hopes to have an experienced director in place shortly.

b. Membership

In fiscal year-3, CMDITR looked closely at its membership to ascertain that it was doing everything possible to increase diversity and to direct resources to existing members from

underrepresented groups. To this end, the Center redefined and refined what it means to be an individual or institutional member. This information bears repeating in the current Annual Report as reporting requirements we have received recently seem to be moving us in the same direction.

CMDITR Individual Membership Definitions:

Participant

A Center participant is an individual who spends 160 hours or more over a twelve month period on activities relating to (a) one or more of the research thrust areas of the Center or (b) tasks related to the Center's education or knowledge transfer missions. A "funded" participant is a participant who receives support in NSF-STC or associated cost-share dollars either in the form of direct salary support (minimum 1-month) or a sub-award to be used for STC purposes (minimum \$10K). Participants may include faculty, graduate students, postdocs, undergraduates, and all other staff. [Participants may belong to Partner Institutions or Associated Institutions. Funded Participants only reside at Partner Institutions.]

Affiliate

A Center affiliate is an individual affiliated with the Center who does not meet the 160 hour requirement for Center participants. Affiliates can come from Partner Institutions, Associated Institutions, or other organizations with no formal relationship to the Center.

CMDITR Institutional Membership Definitions:

Partner Institutions

STC Partner Institutions are those identified in a Center's Cooperative agreement, as well as any other institutions with a contractual relationship to the Center (e.g. institutions awarded a seed grant by means of a formal subcontract, consulting firms hired for program evaluation). All contractually-bound institutions are Partner Institutions.

Associated Institutions

An Associated Institution refers to an institution that is involved with Center activities and events for more than 160 hours over a twelve month period but has no contractual relationship.

Examples:

How would a typical Strategic Advisory Board Member be classified?

An SAB member typically spends fewer than 160 hrs per year on Center activities. Therefore, he or she would be an Affiliate. His or her home organization would be neither a partner institution nor an associated institution of the Center.

What about a scientist at PNNL who works two months per year on STC research but receives no STC funding?

The scientist would be an active Participant and assuming she represented PNNL or used PNNL resources for her technical contributions, PNNL would be an Associated Institution.

The full complement of individuals and institutions meeting these member definitions are provided in Chapter VIII. In this chapter we provide some analysis of our membership in order to assess the diversity of our Center.

Demographic analysis

In conducting a demographic analysis of our membership, it is imperative to completely constrain the membership data for transparency. We identify three criteria that are crucial: (1) whether the member is a participant or affiliate; (2) whether or not the member received NSF-STC funding; and (2) whether or not the member is a US Citizen/permanent resident. *For purposes of statistical analysis, our preference is to examine the population that (1) includes participants only; (2) is funded; and (3) is inclusive of non-citizens.* Our reasons are as follows: (1) Participants are the more active contributors to the Center and therefore better define its makeup. (2) Limiting the analysis to funded participants enables an outsider to critically examine how a Center is allocating its resources. Furthermore, it is difficult to ascertain which members truly put in 160 hours per year, especially for those that were active in the past but may not be so active in recent times. (In the analysis below, we consider participants funded only by direct NSF-STC support. Inclusion of cost share support adds to the complexity of this analysis and is not expected to change the outcome significantly.) (3) In our estimation, non-citizens play important mentoring roles, frequently assume important career positions in the US, and often become US permanent residents and citizens over time. Many of our non-citizen members were recruited before CMDITR was conceived.

If the reader desires to conduct an analysis limited only to US citizens and permanent residents, the information required can be found in VIII.7.

Year-4 CMDITR Membership breakdown

Overall Membership		
	Participants Currently Active	216
	Total Participants Active in yr-4	289
	Affiliates Currently Active	91
	Total Affiliates Active in yr-4	116
	Funded Participants in year-4 (not including undergrads)	122
Y-4 Funded Participants Only		
	Faculty	33
	Postdocs	9
	Graduate Students	64
	Staff	16
	US Citizens and PRs	92
	Non-US citizens	34
	Undergraduates (incl. REU)	34

Faculty

The diversity of CMDITR's funded faculty has steadily increased over our first four years of operation (Fig. 27 – lower panel). In year-4 the proportion of funded faculty from underrepresented groups reached 45% (15/33) including 6 African-Americans, 6 women, and 3 Hispanics (no overlap between these groups). The absolute number of faculty receiving NSF-STC funds has decreased substantially in year-4 as year-3 was a transitional year in which funds were phased out for many faculty and phased in for others. A desirable steady state population would be 30 or fewer PIs. In year-5, we expect that 29 faculty will receive STC research funding.

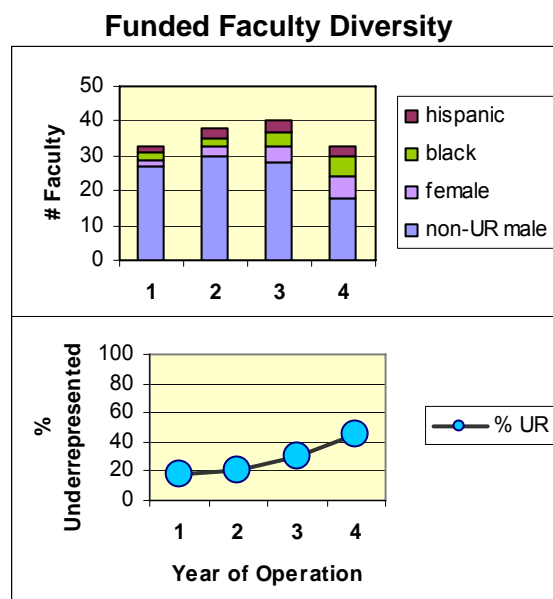
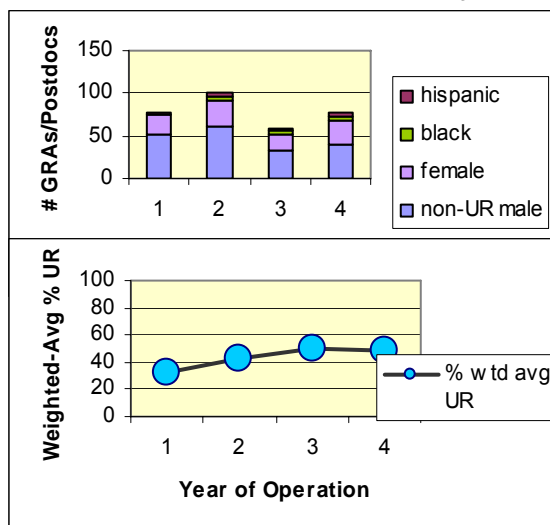


Figure 27. Funded Faculty diversity: Years 1-4. Top panel shows number of faculty receiving NSF-STC support broken down by underrepresented and non-underrepresented groups. Lower panel shows the overall proportion of funded faculty that is from underrepresented groups.

Graduate Students and Postdocs

In year-4, NSF-STC funding was provided to 73 graduate students and postdoctoral fellows. 33 (43%) of these came from underrepresented groups (27 woman, 6 African-Americans, 4 Hispanics; 4 of the women were from minority groups). Over half of this funding (ca. \$0.8M) was directed at the students and postdocs from underrepresented groups. Faculty tended to spread their awards amongst more students in year-4 than in the previous year. This may have resulted from a desire to increase participation levels in the Center, even though membership is not defined on the basis of funding. The average funding level per supported student or postdoc in year-4 was 4.9 months.

a. Funded GRA/Postdoc Diversity



b. Funded Staff Diversity

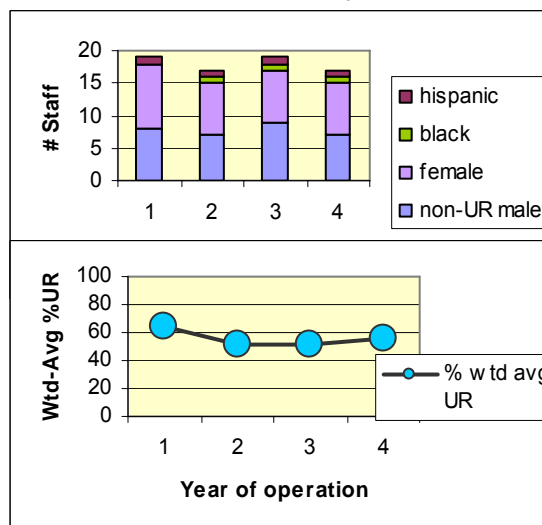


Figure 28. a. Funded graduate student and postdoctoral diversity, years 1-4. b. Funded staff diversity, years 1-4. Top panel shows numbers receiving NSF-STC support broken down by underrepresented and non-underrepresented groups. Lower panel shows the overall proportion of funding that is directed at underrepresented groups (weightings according to months of support provided to each student or staff.)

Staff

In terms of staff supported by NSF-STC funds (administrative plus technical personnel who are neither postdocs nor PIs), the proportion of funding (as measured in months of support) dedicated to individuals from underrepresented groups has held steady between 52-65% (**Fig. 28b**). This has been managed despite significant turnover within the Center staff population.

c. Finances

In fiscal year-4, we project that \$3.64M of NSF funds will be expended in the areas described below.

Year-4 Budget Allocation (NSF \$ only)		
Area of Expenditure	Total	% of NSF Budget
Research	2,500,815	69%
<i>Graduate students+postdocs</i>	1,567,372	43%
<i>Shared instrumentation</i>	210,969	6%
<i>Faculty salary support</i>	204,816	6%
<i>Other (equipment, M&S, meeting travel, etc.)</i>	517,658	14%
Education/Diversity Enhancement	638,970	18%
Administration	373,155	10%
Knowledge Transfer	127,060	3%
Grand Total	3,640,000	

The partitioning of NSF dollars in year-4 was very similar to that in year-3. The majority of spending this year was on research (69%) and within this category, support of students and postdocs was the most important component (63% of Research budget). The Director, Larry Dalton, has stressed to all PIs that STC research funds be used to fund students and postdocs whenever possible, with particular attention to those from underrepresented groups. This funding philosophy is further reflected in the small amount of funds used by faculty for their own salary support (equivalent to about 8% of the total research budget or less than 1 month per PI).

Cost share expenditures from the eight university partners working together in year-4 are still being analyzed and will be available at CMDITR's annual site visit May 23-24 in Seattle, WA.

2. MANAGEMENT PERFORMANCE AND MANAGEMENT INDICATORS

We identify the following performance indicators for Management in year-4 and comment briefly on strides taken in the past year:

- Efficacy of planning and coordination activities
 - *Biweekly Management Team videoconferences have proceeded smoothly including representatives from UW, GT, UA, NMHU, NSU and the Graduate/Postdoctoral Advisory Committee. Since our 2005 annual report, we have published five issues of our Light Works Newsletter. Our 2006 IAP Expo and Annual Retreat held consecutively in Tucson, AZ in February 2006, were the largest and best attended in our history. 20 companies were represented at the Expo, 10 of which are official affiliates. Attendance at our Annual Retreat was 130 including up to six students and postdocs from every Center-funded research group (87 traveled). An entire afternoon of the Retreat was dedicated to student and postdoctoral professional development and discussion to determine needs and attitudes. The CMDITR Strategic Advisory Board will meet on May 5, 2006 (as a result, minutes are not currently available in this annual report). The UW-based STC Oversight Committee chaired by Dean David Hodge met on June 9, 2005, July 25, 2005, January 11, 2006 and February 16, 2006. A more comprehensive University Administrators' meeting including representatives from UW, GT, UA, and NSU is planned for May 10, 2006.*
- Variety and quality of programs and resources created for membership as gauged by usage by members
 - *seven major programs or resources conceived in year-3 were continued and strengthened in year-4: (1) online document archive; (2) student/postdoctoral travel grant program; (3) Light Works Newsletter (electronic (300+) and hardcopy (200) circulation; now available online); (4) student/postdoctoral fellowship program (supported 4 women in year-4); (5) online public resume book (currently 12 resumes viewable); (6) online meeting registration (used by 113 members in 2006); (7) CMDITR Handbook (250 copies printed June 2005). To facilitate communications, the Center introduced a new e-mail listserv in year-4, customizable e-mail distribution lists based on our data mining resource, and a blog. The GPAC has its own webpage through which graduate students and postdocs can participate in a needs and perceptions survey. To assist in lecture capture for our curricular module development, the CMDITR website also offers a Tegrity software download resource.*
- Ability to withstand personnel turnover with minimal disruption of mission
 - *CMDITR's replacement of Dr. Simon Jones as Director of Education in summer 2005 was seamless as Professor Deborah Illman, already a Center participant, stepped in with no gap in leadership. Dr. Jones continued to contribute one day per week*

toward development of curricular modules. With Deborah Illman's departure, Drs. Jones and Michael Bruck, and Professors Phillip Reid and Neal Armstrong worked together to ensure that all education programs remained on track.

- STC-related meeting attendance*
 - Annual Retreat, IAP Expo, and SAB Meetings discussed in VI.2 and VI.4
- Infrastructure breadth and quality (space, communications, labs, quality of support functions)
 - A more complete listing of Center research resources across all partner campuses will be added to the website shortly and is currently included in our handbook. DARPA Phase II awards were successfully secured by UW and GT in March 2006, however, \$1.0M of support promised by DARPA to expand laboratory space in Bagley Hall for the Center is in jeopardy. Chemistry faculty at GT will move into a new state-of-the-art building in Fall 2006. Kippelen's new 3,500 ft² lab facility at GT continues to attract CMDITR and GT users. CMDITR has now located Polycom videoconferencing hardware in 14 locations on all eight partner campuses (UW, GT, UA, NSU, NMHU, CIT, Cornell, UCF).
- Use of CMDITR internal website database for data gathering
 - CMDITR updated its public website to reflect changes in the Research Plan, increased connectivity to the IAP website, extended the capability and holdings of its internal website/database, and built two new websites. These new websites service the GEM-STC Partnership to recruit graduate minority students into seven STCs and invite all educational organizations to make use of our online ethics short course ("Responsible Conduct of Research"). Our members-only internal database now contains over 764 documents in the form of CMDITR-specific policies, presentations, meeting records, and photos/graphics.
- Nature and efficacy of internal review mechanisms
 - The Center has two systems of internal review: (1) Seed Grant applications and (2) research thrust program review. Procedures for securing a CMDITR Seed Grant are carefully elucidated in a policy document; proposals are by invitation only. All proposals and periodic progress reports (3 per year) are compiled and reviewed by Senior Directors, thrust leaders, and project leaders to make awards and grant renewals (2-year maximum seed grant term). The Center awarded six Seed Grants in year-4 and will award six in year-5. Thrust and Project leaders formally evaluate the performance of their research colleagues in the period between the CMDITR annual retreat (Feb) and Annual report (May). Thrust leaders and Project leaders make recommendations to the Senior Directors regarding continuation of funding for all PIs. Formal review of education and diversity programs are implemented by external evaluators. We have numerous reports and summaries for our ongoing REU and ethics training programs.
- Number of trips logged between partner institutions by participants
 - Since May 2005, 10 participants have traveled in connection with the faculty-student diversity exchange program, 7 with the Travel Grant program, 87 for the Annual Retreat, 3 for NSU lectures, and many more for general research collaborations and education/recruitment purposes. This amounts to over 100 trips dedicated to Center activities. This number does not include travel related to our 2005 Site Visit or travel by advisory committee members.
- Number of departments joining in STC activities at lead partner universities (UW, GaTech, UA)
 - 14 total 7 at UW: Chemistry, Physics, MSE, EE, ME, ChE, Applied Phys. Lab
4 at GT: Chemistry, EE, ME, Physics

3 at UA: Chemistry, Optical Sciences, Physics

- Representation by STC in the greater research and education communities, locally, nationally, and internationally.
 - *CMDITR PIs continue to interact heavily with government and industry counterparts and funding agencies (e.g. DOE, DARPA, AFRL/AFOSR, Intel, IBM, Lumera, etc.) via conferences, workshops, and advisory/review panels (see IV.2a-Obj 5). In the past year, our PIs have traveled to Australia, Canada, China, the Czech Republic, Belgium, Germany, Hungary, Ireland, Italy, France, Japan, Scotland, and South Korea for international conferences and reviews. On the education and diversity front, CMDITR's efforts with Norfolk State University and the Commonwealth of Virginia, ANLO, the GEM Consortium, QEM, and as host of HBCUs are achieving national impact. All these and other interactions are listed in chapter VIII and described more fully in chapters II, III, and IV.*
- Relationships with and impacts on our home institutions
 - *UW's campus-wide Photonics Initiative begun in 2004 has gathered momentum with monthly meetings of faculty, postdocs, and students from all around campus. Similarly, UW's 22-member ad hoc Diversity Group led by Alvin Kwiram has continued to convene monthly to coordinate efforts across campus. In 2006, this team hired Dr. Sibrina Collins to serve as a Long-Term Graduate Diversity Recruiter for UW S&E programs campus-wide. At UA, our RCR (ethics) workshops were opened up to a broad audience of chemistry and optical sciences participants. As at UW, CMDITR personnel at UA are joining forces with other minority affairs programs (Minority Health Disparities Research Opps, McNair Achievement Program, Minority Access to Research Careers, Summer Research Institute, and the Sloan Foundation) to pool resources and expand recruiting capabilities. Many collaborations between CMDITR and GT are described in the KT and Diversity chapters.*
- Staff development, training, team building and recognition activities
 - *Cyril Margate, Janis Hill, Suzy Hunter, Maggie Harden, Cecile Domercq, Angie Hughes, Olanda Bryant and Glen Shen attended various training and development courses in grant and contract procedures, travel, purchasing, software usage, and leadership. Notably, Suzy Hunter helped found the Southern Arizona Macromedia Users Group (SAZMUG) and currently serves as the Group Manager. The 2006 Annual Retreat featured significant team-building elements including poster awards, all-hands-are-invited dinners, and a field trip to the Sonora Desert Museum. Team building is also taking place through recruitment of students and postdocs to facilitate ethics discussion, solicitation of newsletter articles from a wide cross-section of members, and organized visitation between campuses through CMDITR's Travel Grant Program. In year-4, CMDITR recontracted Black Rhino Marketing to produce additional t-shirts for our members and industrial affiliate representatives.*

3. MANAGEMENT PROBLEMS

Following a major reorganization in year-3, the greatest challenge faced by Management this past year was keeping track of our active participants.

At the start of year-4, 11 PIs funded during the previous year did not receive new increments, while 7 PIs were added recently. Assuming an average research group participation level of three, this meant that the status of over 50 participants was in potential flux this past year. Since membership in an STC (as defined by NSF) is not dictated by funding, determination of an accurate membership roster was not trivial.

The first step was to encourage all new PIs to register their group members in the CMDITR database to ensure that new members would identify with and take part in the Center as quickly as possible. Unfortunately, this did not always happen. This problem is not confined to new PIs as even 4-year veterans occasionally forget to add new student participants and affiliates to the database. This only becomes evident when the Management encounters a Retreat attendee or student applying for member benefits who is not in the database. The task of registering new members is not something that Center administrators can do for the PIs. It depends on the goodwill and conscientiousness of the faculty.

The second step was to “scrub” the database of members no longer interested in Center involvement. This is not easy to determine, and generally requires direct inquiry. Our experience indicates that approximately $\frac{3}{4}$ of faculty whose funding is discontinued choose to pull out of the Center. The other quarter has tended to develop strong collaborations and sees advantages, particularly for students, in remaining active. Generally speaking, if one or more students in a research group express a desire to remain participants, we will retain the faculty member’s name in the active roster.

Roster maintenance, even in the absence of reorganization, is a challenge owing to the transient nature of students and postdocs. Members leaving for new studies or jobs are often so preoccupied with their new lives, they neglect to “check-out” from the database and let us know where they are going. Many of these departing members represent lost “success stories”. Finding this information takes dedicated detective work, but sometimes leads to happy endings like a career feature article in the CMDITR newsletter.

An updated roster is crucial for several reasons. First, many of our performance metrics are based on the proportion of members who take part in Center activities. Second, communications are hampered by an overblown and outdated membership list. Third, funding and demographic analysis for NSF can become distorted if the roster does not accurately reflect the active segment of the membership.

In year-5, we envisage a small reduction in the number of funded PIs, chiefly to increase average award sizes and to recognize only those committed to our research, education, and diversity agendas. The result will be somewhat greater stability in the membership which should translate to increasing awareness by members of Center programs and goals and a more meaningful membership roster.

4. COMMUNICATIONS

Year-3 of operations saw committed effort toward improving Center-wide communications. Examples included the relaunch of our bimonthly Light Works newsletter, advanced website features and resources, an inter-partner travel grant program, and a new bound CMDITR Handbook. In year-4, the Management Team focused on ensuring that our students and postdocs feel included and have the resources they need to be more effective participants and scientists. Here are some examples of measures taken to improve student involvement.

Formation of the Graduate/Postdoctoral Advisory Committee (GPAC)

Although effort was begun over a year ago to recruit leaders among the student and postdoctoral ranks, it wasn’t until an organized field trip following our June 2005 Site Visit that the CMDITR GPAC truly coalesced. Several participants in a San Juan Island kayaking trip

(Denise Bale, Megan Leahy-Hoppa, Terrell Neal, James Westphal) bonded as a result of this outing and became mainstays of this committee. Since then, the GPAC has participated in Management Team meetings, created its own webpage within our Center website, worked with Suzy Hunter to make website improvements, taken ownership of a regular section of our newsletter *Light Works*, and surveyed their peers for attitudes and needs. In fiscal year-5, the GPAC will take control of a modest budget and play a lead role in orchestrating our next Annual Retreat.

Annual Retreat Expansion

In February 2006, 130 members (including 70 students and postdocs) attended our Annual Retreat at the University of Arizona in Tucson, AZ. Travel by up to two students or postdocs from each research group was sponsored from core funds and advisors able to send more group members only paid for airline tickets (all hotel and meal costs were absorbed by the Center). All eight partner universities were represented at the 2006 Retreat. The Retreat itself spanned three days of activities including an afternoon devoted to Professional Development and another afternoon spent at the Arizona Sonora Desert Museum for team building.

Involvement with Industrial Affiliates

Center students have shown increasing interest in our Industrial Affiliates as a potential source of job contacts, internships, and mentors. This interest coincides with CMDITR's expansion of our Affiliates program this past year to 10 official members. CMDITR Diversity Director, Dr. Keith Oden, is spearheading a new mentorship program that will tap into the IAP for possible mentors, and postdoctoral scientist Janelle Leger has been awarded a 2006 Discovery Corps Fellowship (the second won by a CMDITR Postdoc) with which she will help create a Center-wide industrial internship program. At present, 22 students and postdocs have resumes uploaded to our IAP website and 12 of these are also accessible by any companies willing to register on our public website.

Newsletter

Student input and leadership by Maggie Harden has led us to revamp the format of our bimonthly newsletter. The new *Light Works* will arrive in an e-mail format with numerous links to our public and member-only websites, thus encouraging members to utilize these resources more fully. Graduate student Colleen Craig has joined our editorial team to help build each issue – practice for what she envisions as a career in technical writing.

Travel Programs

The CMDITR Travel Grant Program, now 1.5 years old, has sponsored 12 trips by students and postdocs between Center partner campuses and a minimum of 9 more trips are scheduled by end of 2006. Outcomes are regularly reported via feature articles in *Light Works*. In year-4, travel possibilities for students have been expanded substantially. First, CMDITR was awarded \$138K of supplemental NSF-OIA funds for our highly rated proposal for an **International Travel Experiences Program**. Approximately 10-12 Center graduate students will help us build long-term relationships with four overseas institutions hand-chosen for their research reputations and existing linkages with Center personnel. These include the Chinese Academy of Sciences, the Universite de Mons-Hainaut (Belgium), The Russian Academy of Sciences, and Osaka University (Japan). Travel by CMDITR students will begin in the summer of 2006 and at least half of these trips will be reciprocated by students from the host institutions. Second, CMDITR will now expand its short-term Travel Grant Program to allow students to spend up to several months at partner campuses to perform research.

5. MANAGEMENT OUTREACH

This Center has always prided itself on a spirit of STC community. For example, in our second year of operations, we had already created a sophisticated internal database and a 3-hour online short course in “Responsible Conduct of Research,” both of which we offered to share with other Centers. In the case of the database, after presentation of the concept at the STC Directors’s Conference at Cornell University in August 2004, we approached NSF for modest support to generalize and share the Cold-Fusion-based platform. This funding, however, never materialized. By fall of 2005, it became clear that most Centers were not interested in our technology if they themselves had to help pay for its sharing and upkeep. For the ethics short course, we modified our original content, sought all necessary permissions, and spent Center resources to make the modules available through an independent portal available to any organization with an educational mission (<http://www.responsibleresearch.org/>).

More recent examples of effort to benefit the greater community includes our “Match-Maker” resource which attempts to pair prospective minority graduate students with any of seven Centers that are part of the GEM-STC Partnership. This partnership was led by the CMDITR as a direct result of a 2004 NSF-URG award for \$100k to sponsor the first ever GEM-STC fellowships.

6. INTERNAL AND EXTERNAL ADVISORS

STRATEGIC ADVISORY BOARD

	Name	Affiliation
1	Ray Baughman	Professor, University of Texas at Dallas
2	Warren Buck	Chancellor, UW Bothell
3	Ralph Derrickson	Principal, RCollins Group
4	James Dye	Professor, Michigan State University
5	Petra Lahaie	Venture Capitalist, Vault Capital
6	Tadashi Miyashita	Former CEO of PIRI
7	Martin Smith	Partner, Preston Gates
8	Jean Trehwella	Research Staff Member, IBM Research Division
9	Isiah Warner	Professor, Louisiana State U
10	Alvin Kwiram (Secretary)	Professor, UW
11	Edel Wasserman (Chair)	Research Advisor to DuPont

EDUCATIONAL ADVISORY COMMITTEE

	Name	Affiliation
1	Nancy Barcelo	UW
2	Suely Black	NSU
3	Beatriz Cardelino	Spelman College
4	Susan Ermer	Locheed-Martin
5	Sally Jackson	UA
6	Pat MacGowan	UW - MESA
7	Judy Mansfield	Heritage College
8	Maresi Nerad	UW
9	Paul Ohme	GT – CEISMC
10	Greg Phelan	Seattle Pacific University
11	Phil Reid	UW
12	Dennis Schatz/Bryce Seidl	Pacific Science Center

13	David Szatmary	UW
14	Carin Weiss	Seattle Community College
15	Kristin Wustholz	UW

INDUSTRY AFFILIATES

	Name	Affiliation
1	Leopold Demiddeleer	Solvay S.A.
2	Susan Ermer	Lockheed-Martin
3	Jon Goldman	Lumoflex
4	Shibin Jiang	NP Photonics, Inc.
5	William Krug	Boeing
6	Tom Mino	Lumera Corporation
7	Michael Morse	Intel
8	Yasukazu Nakata	Lintec
9	Georgeanne Purvinis	Battelle Memorial Institute
10	Ian White	Focal Point Microsystems

7. CHANGES TO THE CENTER'S STRATEGIC PLAN

The Strategic Plan is revised annually. This year's revision concentrated on an improved Science and Technology Plan and clarified framework of project areas and leaders. This revision can be found in I.3.a and in the document archive of the CMDITR online database.