

SC Research Centers of Excellence
Clemson University
Chair: Optical Materials

On April 28, 2004, the Review Board approved the Research Center of Economic Excellence Endowed Chair in Optical Materials. The Chair is affiliated with Clemson's *Center for Optical Materials Science and Engineering Technologies* (COMSET) through its research activities in organic or inorganic materials for optical fiber and related photonic technologies and is to have an academic appointment in one of the participating academic departments at Clemson.

The Chair will provide leadership in the efforts of the Research Center of Economic Excellence to become the pre-eminent national research center in optical materials. This includes:

- conducting best-in-world materials research,
- recruiting and mentoring top graduate students with a focus on domestic scholars,
- teaching undergraduates and stimulating interest in math and science among South Carolinians with special attention paid to the under-represented,
- identifying and fostering the latest technologies and initiating partnerships with top national research Universities and national laboratories,
- aiding our industrial and economic development partners in the transfer of technologies from Clemson to the public sector, and
- fostering new firm formation and participating in the recruitment of optical technology firms to South Carolina.

The result of these research and innovation, education, and technology transfer activities will be knowledge-based economic development in South Carolina.

On November 10, 2005, the J. E. Serrine Textile Foundation formally announced a \$2,800,000 gift for this position and focused the research interests of the Chair-holder in area of optical fiber and the School of Materials Science and Engineering (MSE) as the academic department through which the Chair's tenure and position reside. Prior to the October 28, 2005 deadline Clemson had received the remaining pledges.

A search and screen committee was formed and an international search was initiated in the Fall of 2005. The position announcement was conducted through advertisements in the top-tier national and international trade and scientific journals in this field and through postings on their websites and on the Clemson University website. The search is still underway and a number of

the world's top optical fiber scholars have applied. It is expected that decisions will be finalized this year.

It is premature to address many of the items requested in the annual report since the Endowed Chair has not yet been hired. However, there are a few items relevant to the environment in which the Chair will operate that can be highlighted.

On December 9, 2004, the 3M Corporation 3M donated a Modified Chemical Vapor Deposition (MCVD) system to Clemson University. The system is used for fabricating the glass preforms that subsequently are drawn into optical fiber. The original purchase price for this equipment was \$894,100 and the donation was made in support of the Endowed Chair in Optical Materials. This glass fabrication system, along with the existing optical fiber drawn tower positions Clemson as one of only three Universities in the world (only one in the United States) with a complete industry-level capability for making optical fiber. Since the Serrine gift focused the scholarship of the Endowed Chair into optical fiber, this is directly impacting on that position. In other words, truly best-in-world infrastructure will be in place when the Endowed Chair is hired. On October 14, 2005, the High Energy Laser Joint Technology Office (HEL-JTO) awarded Clemson University a Multi-Discipline University Research Initiative (MURI) program on *High Power Fiber Lasers*. This is a three year program, with an option for two additional years, awarded at a funding level of approximately \$900,000 per year. This program is directly in line with the interests and expertise of the Endowed Chair candidates and so sponsored programs also are in place for when the Endowed Chair is hired.

Lastly, given the fiber fabrication infrastructure and the visibility provide by this JTO program, the COMSET program at Clemson in which the Endowed Chair would perform research is visited approximately biweekly by private sector representatives looking to develop or expand on collaborative research and educational activities.

**Annual Report for Submission to:
 Research Center of Economic Excellence
 For the fiscal year ended June 30, 2006**

	Lottery Funding Principal	Lottery Funding Earnings	Matching Gifts Principal	Matching Gifts Earnings	Total Principal & Earnings	Programmatic Expenses	Ending Balance
Optical Materials - FY 06	\$ 2,800,000	\$ 151,857	\$2,800,000	\$ 143,429	\$5,895,286	\$ -	\$ 5,895,286

**SC Research Centers of Excellence
Clemson University
Chair: Vehicle Electronics Systems**

Objectives

Prof. Todd H. Hubing was hired to become the first Michelin Chair of Vehicle Electronics Systems and arrived on campus in July. Prof. Hubing has a significant amount of experience initiating and guiding industry/university collaborative research efforts. He is looking forward to working with faculty, staff and students at Clemson to establish CU-ICAR as the premier automotive and motorsports research and education facility in the world.

Private Sector Partnerships

Prof. Hubing has established the Clemson Vehicular Electronics Consortium, which provides companies with a quick and convenient way to get involved in automotive research at Clemson University. Already, several companies have expressed interest in joining the consortium and Prof. Hubing has been traveling extensively to promote both the consortium and CU-ICAR.

The consortium serves primarily to build relationships with industry by allowing companies to sponsor small research projects relevant to their interests with minimal administrative overhead. Consortium research shows companies what can be accomplished by collaborating with the university and with the other companies in the consortium. Companies in the consortium are more likely to sponsor larger CU-ICAR projects, once a working relationship has been established.

Prof. Hubing is also leading the effort at CU-ICAR to define and establish different levels of membership in the center. Eventually, companies will be able to work with, contribute to and benefit from CU-ICAR in a variety of ways.

Significant Achievements

Prof. Hubing has transferred his ongoing research projects from the University of Missouri-Rolla to Clemson University. He is working with 3 companies currently (NEC, Hitachi, and Zuken) and expects to be working with more companies through the consortium. He has three full-time graduate students and a post-doc working with him. He is also working with other faculty in electrical engineering and mechanical engineering to explore possible research collaborations relevant to CU-ICAR.

Education and Training of Graduate Students

Prof. Hubing has proposed two electronics courses for the new automotive engineering curriculum, “Introduction to Automotive Electronic Systems” and “Automotive Electronics Design”. He will also teach a course in “Grounding and Shielding” and other courses in electrical and computer engineering.

Innovation, Knowledge Transfer, Identifiable Economic Outcomes

Prof. Hubing is pursuing funding for an anechoic chamber and facilities that would provide the only full-vehicle EMC test capability in the southeast United States. Despite the large number of automotive companies and OEMs located in or near South Carolina, companies currently cannot do required tests of the vehicle electronics without going to the Detroit area or outside the U.S. Full-vehicle EMC testing is a crucial capability not only for automotive research, but also for diagnosing and solving problems with production vehicles. Providing this capability will save time and money for automotive companies in South Carolina and help to bring new companies and funding to the state.

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 Research Center of Economic
 Excellence
 For the fiscal year ended June 30, 2006**

	Lottery Funding Principal	Lottery Funding Earnings	Matching Gifts Principal	Matching Gifts Earnings	Total Principal & Earnings	Programmatic Expenses	Ending Balance
Vehicle Electronic Systems - FY 05	\$ 1,160,000	\$ 64,620	\$1,460,000	\$ 96,659	\$2,781,279	\$ -	\$ 2,781,279
Vehicle Electronic Systems - FY 06	\$ 900,000	\$ 132,081	\$ 540,000	\$ 185,496	\$1,757,577		\$ 1,757,577
	<u>\$ 2,060,000</u>	<u>\$ 196,701</u>	<u>\$2,000,000</u>	<u>\$ 282,155</u>	<u>\$4,538,856</u>	<u>\$ -</u>	<u>\$ 4,538,856</u>

Note - \$300,000 State Lottery funding
 match
 was received on 08/17/05

**SC Research Centers of Excellence
Clemson University
Chair: Automotive Manufacturing**

PROGRAMMATIC PROGRESS REPORT

Documentation that the proposed objectives are being met along with a description of the continuous assessment processes used to verify stated outcomes

Clemson University conducted an international search for hiring the endowed chairs currently supported by the S.C. Research Centers of Economic Excellence

Endowed Professorship Program in 2004-05. The goal of this search is to identify top individuals who are nationally and internationally renowned in the fields of Systems Integration and Manufacturing. The following is a list of what has been accomplished so far in this process:

Endowed Chair for Automotive Manufacturing Hiring Process and Time-line

1. The search for the Automotive Manufacturing Chair is completed with Dr. Tom Kurfess, formerly Professor of Mechanical Engineering at Georgia Tech, being hired for the position starting August 15, 2005. Dr. Kurfess is a world-renowned authority in the field and his hiring is bringing significant attention to Clemson University and the State. Dr. Kurfess is serving also as Director of the Campbell Graduate Engineering Center and is the Chair of the search committee for the remaining Automotive Engineering faculty positions.
2. Two junior faculty members have been hired to support the Manufacturing Chair. Their expertise areas are production systems, control and quality assurance.

Demonstration of the significant achievements of the endowed professorship/research center of excellence

1. Automotive Engineering Program

The Chair in Automotive Manufacturing has assisted in the development and refinement of the MS and PhD graduate program in Automotive Engineering. The SC Commission of Higher Education and the Southern Association of Colleges and Schools have approved this program. Presently, he is leading the final development of individual course specifications for the program. He is also working on recruiting strategies for the Automotive Engineering Graduate Program. The first doctoral students have been admitted

into the Automotive Engineering Program. Master's students will matriculate into the program in August 2007.

2. Physical facilities development for the CU-ICAR Campus:

- a. The Campbell Graduate Engineering Center (1,200sm) (Groundbreaking/ 4th quarter 2005 / target completion Spring 2007)
- b. Testing facilities and equipment identified and negotiations with suppliers completed 2005.
- c. The Timken Technology Center Greenville (completed).
- d. The BMW-Information Technology Research Center (8,000sm / completed)
- e. Central roadway infrastructure (completed)
- f. Water distribution and sewer systems (completed)
- g. Construction on parking garage and other research facilities is underway.

Development of ongoing private sector partnerships

To aid in the development of ongoing private sector relationships, Clemson University, in April 2004, hired Mr. Bob Geolas as Director of the CU ICAR Campus. Mr. Geolas is actively promoting the ICAR campus including the Carroll Campbell Graduate Engineering Center. In addition the University has hired Dr. Wayne Bennett, starting August 2004 to focus on developing private sector partnerships for the Carroll Campbell Graduate Engineering Center. Dr. Bennett has been active in making contacts with major donors to the academic program.

Dr. Chris Prizembel, VP for Research and Economic Development, Dr. Tom Keinath, Dean of the College of Engineering and Science, Dr. Larry Dooley, Associate Dean for Research, College of Engineering and Science, and Dr. Imtiaz Haque, Chair, Department of Mechanical Engineering have actively been involved with developing new private sector partnerships.

Major companies contacted to date include General Motors, Dana Corporation, Battelle, Sun Microsystems, IBM, The Timken Company, Intertek Corporation, Daimler-Chrysler, Toyota, Honda, Robert Bosch Corporation, Visteon, Siemens Corporation, Hewlett-Packard, Siemens, Nissan, Staubli, MTS systems, FEV Systems, AVL Systems, Zeiss Industrial Measurement Corporation, Advanced Automation Inc., and Jianling Motors. Contacts include site visits and/or presentations on the CU-ICAR concept, the endowed professorships, and the proposed Graduate Program in Automotive Engineering. Clemson University has had extensive contacts with BMW A.G. To further define the research

relationship. Clemson University participated in the BMW Pro-Am tournament in 2004 and 2005 as one of the sponsors to develop close contacts with BMW suppliers.

Clemson University personnel have made many trips to Germany between 2004 and 2006 to reach automotive suppliers who might be interested in coming to the US. Contacts with the British Motorsports Industry Association continue.

Development of a plan for fostering innovation and knowledge-transfer

Clemson University hired Dr. David Bodde as Director of Innovation and Public Policy for CU ICAR in 2004. Dr. Bodde is responsible for developing a plan for how this will be accomplished. Dr. Bodde is author of a widely read report on the Hydrogen Economy. He is a renowned expert in the field of innovation and technology transfer. Initial plans for a thrust in alternative fuels in conjunction with Dr. Bodde have been developed.

Education and training of graduate students

Clemson University developed the curriculum requirements for the new Graduate Program in Automotive Engineering in 2005. The SC Commission on Higher Education has approved the graduate program in October 2005. Faculty in Mechanical Engineering engaged colleagues in Computer Science, Electrical and Computer Engineering, Industrial Engineering, Mathematics, Chemical Engineering, and Materials Science to define the program. Faculty in the College of Business and the College of Art, Architecture, and Humanities have also been involved to define minors that might be considered. The Mechanical Engineering faculty conducted workshops with BMW, Michelin, Timken, Siemens and a number of supplier companies to get industry involvement and buy-in. These workshops were held in November 2004, January 2005, May 2005, September 2005 and January 2006.

Clemson University hired the architectural firm of Scoggins and Elam to plan and execute the building that will house the Graduate program in Automotive Engineering.

Faculty were intimately involved with the programming aspects of the building. Major equipment has been finalized and ordered for the facility.

Documentation of how and the manner in which the expertise developed within the

project's activities is being, or will be, shared with other institutions in South Carolina through scholarly interactions, research collaborations, consortial agreements, etc.

Clemson University used the SC EMBER conferences to share the results of the research being performed at ICAR with other universities in the State. To initiate this interaction, Drs. Haque and Dooley made presentations on Clemson University's capabilities in the automotive area and the ICAR initiative at the SC EMBER Conference at Wild Dunes, SC in October 2004. Faculty and administrators from the three major research universities were present at the conference. Collaborative efforts in the areas of Fuel Cells and their automotive applications are under discussion. Collaborations in the area of automotive safety and crashworthiness have been discussed with faculty at the Medical University of South Carolina. Other aspects of scholarly interaction and collaboration will develop as the center is staffed and up and running. Clemson University is a member of the Hydrogen and Fuel Cells Alliance.

**Annual Report for Submission to:
 Research Center of Economic Excellence
 For the fiscal year ended June 30, 2006**

	Lottery Funding Principal	Lottery Funding Earnings	Matching Gifts Principal	Matching Gifts Earnings	Total Principal & Earnings	Programmatic Expenses	Ending Balance
Automotive Manufacturing Endowment - FY 04	\$ 2,000,000	\$ 43,991	\$2,000,000	\$ 72,698	\$4,116,689	\$ -	\$ 4,116,689
Automotive Manufacturing Endowment - FY 05	\$ 1,000,000	\$ 195,574	\$1,000,000	\$ 275,258	\$2,470,832	\$ -	\$ 2,470,832
Automotive Manufacturing Endowment - FY 06	\$ 1,000,000	\$ 290,912	\$1,000,000	\$ 405,953	\$2,696,865	\$ 61,751	\$ 2,635,114
	<u>\$ 4,000,000</u>	<u>\$ 530,477</u>	<u>\$4,000,000</u>	<u>\$ 753,909</u>	<u>\$9,284,386</u>	<u>\$ 61,751</u>	<u>\$ 9,222,635</u>

Note: \$468,735 for Salaries, Fringe, Graduate Assistants, Wages, Travel and Supplies were paid from other funds in FY2006.

**SC Research Centers of Excellence
Clemson University
Chair: Automotive Systems Integration**

PROGRAMMATIC PROGRESS

Documentation that the proposed objectives are being met along with a description of the continuous assessment processes used to verify stated outcomes

Clemson University conducted an international search for hiring the endowed chairs currently supported by the S.C. Research Centers of Economic Excellence Endowed Professorship Program. The goal of this search is to identify top individuals who are nationally and internationally renowned in the fields of Automotive Systems Integration and Manufacturing. The following is a list of what has been accomplished so far:

Endowed Chair for Systems Integration Hiring Process and Time-line

1. The search for the Automotive Systems Integration Chair is still underway with the goal to fill that position as soon as the right candidate is identified. In 2005-06, the search committee consisting of the Automotive Manufacturing Chair and four other senior faculty conducted a national search for this position. The committee interviewed 3 candidates for the position but did not make an offer. The committee continues to actively search for this position.
2. A junior faculty member has been hired to support the Automotive Systems Integration Chair. His expertise is in vehicle system diagnostics and sensor integration.

Demonstration of the significant achievements of the endowed professorship/research center of excellence

1. Automotive Engineering Program

MS and PhD graduate program in Automotive Engineering was approved by The SC Commission of Higher Education and the Southern Association of Colleges and Schools in 2005. This program was developed through significant industry and faculty input. The first doctoral students have been admitted into the Automotive Engineering Program. Master's students will matriculate into the program in August 2007. This is a significant achievement.

2. Physical facilities development for the CU-ICAR Campus:

- a. The construction on the Campbell Graduate Engineering Center is well underway. Groundbreaking for the Center occurred in the 4th quarter 2005. The

- target completion date is Spring 2007.
- b. Testing facilities and equipment were identified and negotiations with suppliers completed. Equipment purchases were approved by the SC Budget and Control Board and purchase orders for the equipment issued in 2006.
 - c. The Timken Technology Center in Greenville has been completed and Timken Company is proceeding with staffing the center.
 - d. The BMW-Information Technology Research Center has been completed and is staffed by BMW personnel. Research and development activities in the center are underway.
 - e. Construction on a parking garage and other research facilities is underway.

Development of ongoing private sector partnerships

Mr. Geolas Executive Director of CUICAR is actively promoting the campus including the Carroll Campbell Graduate Engineering Center. Dr. Wayne Bennett, Senior Development Consul, has been active in making contacts with major donors to the academic program. An outcome of the above efforts is the decision of the Timken Company to support the Chair in Automotive Design and Development. In addition endowment commitments for student support have been received from two donors.

Dr. Chris Prizembel, VP for Research and Economic Development, Dr. Tom Keinath, Dean of the College of Engineering and Science, Dr. Larry Dooley, Associate Dean for Research, College of Engineering and Science, Dr. Imtiaz Haque, Chair, Department of Mechanical Engineering, and Dr. Tom Kurfess, Director of the Campbell Engineering Center have actively been involved with developing new private sector partnerships.

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Clemson University personnel have made a number of trips nationally and internationally in 2005-2006 to reach automotive suppliers. Contacts with the British Motorsports Industry Association and the US motorsports industry continue through the efforts of Mr. Sam Konduros, Acting Motorsports Director for the Brooks Institute for Sports Science at Clemson.

Development of a plan for fostering innovation and knowledge-transfer

Dr. David Bodde, Director of Innovation and Public Policy for CUICAR is responsible for developing a plan for how this will be accomplished. Dr. Bodde is author of a widely read report on the Hydrogen Economy. He is a renowned expert in the field of innovation and technology transfer. He has also been leading the development of a plan for a research thrust in alternative fuels in.

Education and training of graduate students

Clemson University developed the curriculum requirements for the new Graduate Program in Automotive Engineering in 2005. The SC Commission on Higher Education and Southern Association of Colleges and Schools (SACS) approved the graduate program in 2005. Faculty in Mechanical Engineering engaged colleagues in Computer Science, Electrical and Computer Engineering, Industrial Engineering, Mathematics, Chemical Engineering, and Materials Science to define the program. Faculty in the College of Business and the College of Art, Architecture, and Humanities have also been involved to define minors that might be considered. The Mechanical Engineering faculty conducted workshops with BMW, Michelin, Timken, Siemens and a number of supplier companies to get industry involvement and buy-in. These workshops were held in November 2004, January 2005, May 2005, September 2005 and January 2006.

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equipment has been finalized and ordered for the facility.

Documentation of how and the manner in which the expertise developed within the project's activities is being, or will be, shared with other institutions in South Carolina through scholarly interactions, research collaborations, consortial agreements, etc.

Clemson University used the SC EMBER conferences to share the results of the research being performed at ICAR with other universities in the State. To initiate this interaction, Drs. Haque and Dooley made presentations on Clemson University's capabilities in the automotive area and the ICAR initiative at the SC EMBER Conference at Wild Dunes, SC in October 2004. Faculty and administrators from the three major research universities were present at the conference. As an outcome of this collaborative efforts in the areas of Fuel Cells and their automotive applications are under discussion. Collaborations in the area of automotive safety and crashworthiness have been discussed with faculty at the Medical University of South Carolina in 2006. Other aspects of scholarly interaction and collaboration will develop as the center is staffed and up and running. Clemson University is a member of the Hydrogen and Fuel Cells Alliance.

**Annual Report for
Submission to:
Research Center of
Economic Excellence
For the fiscal year ended
June 30, 2006**

	Lottery Funding Principal	Lottery Funding Earnings	Matching Gifts Principal	Matching Gifts Earnings	Total Principal & Earnings	Programmatic Expenses	Ending Balance
Automotive System Integration Chair Endowment - FY 04	\$ 5,000,000	\$ 109,978	\$5,000,000	\$ 181,744	\$ 10,291,722	\$ -	\$ 10,291,722
Automotive System Integration Chair Endowment - FY 05	\$ -	\$ 434,847	\$ -	\$ 613,748	\$ 1,048,595	\$ -	\$ 1,048,595
Automotive System Integration Chair Endowment - FY 06	\$ -	\$ 521,784	\$ -	\$ 648,648	\$ 1,170,432	\$ 154,377	\$ 1,016,055
	<u>\$ 5,000,000</u>	<u>\$1,066,609</u>	<u>\$5,000,000</u>	<u>\$1,444,140</u>	<u>\$ 12,510,749</u>	<u>\$ 154,377</u>	<u>\$ 12,356,372</u>

Note - \$97,942 in related
endowment chair
search expenses were
paid from other funds
in FY 04.

**SC Research Centers of Excellence
Clemson University
Chair: Advanced Fiber-Based Materials**

Overview:

Clemson's School of Materials Science and Engineering received notification of award from the State on June 13th 2006 that our proposed Center in *Advanced Fiber-based Materials* (CAFBM) had been awarded. This \$4M matching fund award, was immediately put to use, as the original \$2.8M gift from the J.E. Serrine Textile Foundation (received to Clemson, November 2005), was submitted to the State for request of match; state matching funds of \$2.8M were "booked" in the Clemson Foundation records, by end of the FY (June 30, 2006).

Fund raising status

Based on the above effort, we continue progress (efforts initiated in November 2005) to raise the balance of the \$1.1M. Ms. Ann Marie Alexander, Director of Development for the College of Engineering and Science at Clemson, has been instrumental in coordinating efforts to assemble donor history data and schedule visits associated with our defined fund raising strategy. In conjunction with Clemson's development office, the CAFBM team has carried out a detailed assessment of potential donors, noting likely/plausible industry, foundation, individual opportunities and we have prioritized our approach to contact. We are scheduling meetings and visits to Clemson (i.e. for Football games, etc) to share a summary of the vision for the Chair and possible synergy to donor interest. We have prepared a two page case statement that we are including with all communications to potential donors.

Industry

Ms. Alexander has set up numerous, productive meetings, including a visit with Dow Chemical in Midlands, MI in July. At this meeting, we met with senior VP level administration (Dr. Don Taylor) and several other members of the Dow technical staff, including CU alumna Dr. Bridgette Gomillion. Instrumental in preparation of background information was Clemson alum Dr. Ron Taylor. This meeting resulted from a prior visit to Clemson by Don and Bridgette in November 2005, to assess overlap with Dow needs, among the multiple Clemson research Chair initiatives currently in progress. Dow selected our Chair as one (of two) of their primary projects of interest. There have been several follow up conversations with Dow, and an action on those meetings is expected shortly. This will likely involve additional information exchange, and possible alignment with their Central R&D team and their "target University support team" at this time.

Additionally, Dr. Ellison has initiated contact with an old friend at DuPont, Mr. Ray Miller. Mr. Miller, who has been involved since the proposal preparation stage last summer, has indicated that he will arrange a meeting between the principals at Clemson and the relevant people within DuPont to explore support for the Chair.

We have also met with other, smaller firms, including Kent Mfg, Cheraw Mills, and others regional manufacturers. Response has been uniformly positive and we are defining next

steps, visits and supporting information needed to proceed.

Other activities

Advisory Board

We have initiated discussions with local supporters who were instrumental in the successful award of the Center to define key components of a core Advisory Team. While not planned to be a complete Board at this time, our plan is to utilize local regional industrial partners who are familiar with regional needs related to the Chair's topic areas, to initiate creation of the search materials and organize and align contact to potential donors. It is planned that the full Board will be assembled, once a viable candidate has been identified. It is expected that the Board would be made up of suitably appropriate representatives capable of supporting the specific technical discipline of the Chair candidate.

Initial advertisement to world-wide audience

Dr. Ellison prepared and has distributed (through mailings as well as distribution at discipline-relevant international professional society meetings) an initial one pager discussing the establishment of the Chair, its goals and objectives to solicit initial interest.

Additionally, we are inviting suitably experienced potential Chair candidates to visit Clemson as part of the School's Graduate Seminar series, to understand current activities and potential overlap with interests and experience suitable to those targeted by the Chair. We have already hosted one visitor in September, and will have another in house for the School's *External Advisory Board* meeting, in late October.

Search Process

We have initiated and will share with our core Advisory Team, a first draft of the Endowed Chair job description. We expect to initiate this search within the 2006-2007 academic year. We have initiated in parallel, an internal MSE team to assess space availability and needs associated with the Chair position. We are preparing briefing information to the College's new Dean, Esin Gulari to define space requirements and allocation strategy, to be assigned to MSE for this purpose.

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Advanced Fiber Based Materials - FY 06	\$ 2,800,000	\$ -	\$2,800,000	\$ 83,087	\$5,683,087	\$ -	\$ 5,683,087

Note - \$300,000 State Lottery funding
 match
 was received on 07/13/06