



NATIONAL SCIENCE FOUNDATION  
INDUSTRY/UNIVERSITY COOPERATIVE RESEARCH CENTERS

# FINAL Report

## *2005-2006 STRUCTURAL INFORMATION<sup>1</sup>*

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<sup>1</sup>**NOTE:** 2005-2006 data collected from 38/39 Center Director Surveys (97.4% response rate).

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**Table 1: 2005-2006 GENERAL CENTER INFORMATION\* (Sorted Chronologically)**

Yr Funded:	Center Name	University Name: Director	Partner University 1 Director	Partner University 2 Director	Partner University 3 Director	Partner University 4 Director
1984*	Microcontamination Control	Northeastern Univ. Busnaina	Univ. of Arizona Parks			
1985	Nondestructive Evaluation	Iowa State Univ. Thompson				
1985*	Measurement and Control Engineering^	Univ. of Tennessee, Knoxville Jendrucko	Oklahoma State Univ. Tree			
1986	Berkeley Sensor & Actuator Center	Univ. of California, Berkeley Huggins	Univ. of California, Davis Horsley			
1988	Composite & Ceramic Materials	Rutgers Univ. Haber	Univ. of New Mexico Dayte	Pennsylvania State Univ. Adair		
1995*	Health Management	Univ. of Washington Conrad	Univ. of California, Berkeley Rundall			
1996*	Power Systems Engineering	Arizona State Univ. Vittal	Carnegie Mellon Univ. Talukdar	Colorado School of Mines Sen	Cornell Univ. Thomas	Georgia Institute of Tech. Meliopoulos
1997*	Advanced Polymer and Composite Engineering	Ohio State Univ. Koelling	Florida State Univ. Wang	Univ. of Wisconsin-Madison Turng		
1997*	Built Environment	Univ. of California, Berkeley Arens				
1997*	Management of Information	Univ. of Arizona Nunamaker				
1997*	Virtual Proving Ground Simulation	Univ. of Iowa Chen	Univ. of Texas at Auburn Longoria			
1998	Advanced Studies in Novel Surfactants	Columbia Univ. Somasundaran				
1998	Information Technology and Organizations	Univ. of California, Irvine Gurbaxani				
1998	Precision Metrology	Univ. of North Carolina, Charlotte Hocken				
1998	Silicon Wafer Engineering and Defect Science	North Carolina State Univ. Rozgonyi	Univ. of California, Berkeley Weber			
1999	Advanced Vehicle Electronics	Auburn Univ. Suhling				
1999	Repair of Buildings and Bridges with Composites	Univ. of Miami Nanni	North Carolina State Univ. Rizkalla			
1999	Tree Genetics Research	Purdue Univ. Michler	Oregon State Univ. Strauss			
1999	Water Quality	Univ. of Arizona Pepper	Arizona State Univ. Abbaszadegan			
2000	Biocatalysis & Bioprocessing of Macromolecules	Polytechnic Univ. of New York Gross				
2001	Biomolecular Interaction Technologies	Univ. of New Hampshire Laue				
2001	Dielectric Studies	Pennsylvania State Univ. Randall	Univ. of Missouri-Rolla Dogan			
2001	Intelligent Maintenance Systems	Univ. of Cincinnati Lee	Univ. of Michigan Ni	Univ. of Missouri-Rolla Sarangapani		
2001	Membrane Applied Science and Technology	Univ. of Colorado at Boulder Greenberg	Univ. of Cincinnati Clarson			

\* Report sorted by Status, Organized by Year Funded; ^ = Last year funded by NSF

IUCRC Structure Database, FY 2005-2006

\* Additional Universities and Directors for the Power Systems Engineering Center are: Howard Univ. (Momoh), Iowa State Univ. (McCalley), Texas AM (Kezunovic), Univ. of Cal-Berkeley (Oren), Univ. of IL-Urbana (Sauer), Univ. Wisconsin-Madison (Demarco), Washington State Univ. (Bose), Wichita State Univ. (Jewell)

\* Additional Universities and Directors for the Center for Engineering Logistics and Distribution are: Univ. of Florida (Welt), Univ. of Louisville (Heragu), Univ. of Nebraska (Jones), Univ. of Oklahoma (Pulz)

^ No data reported for 2005-2006 by MCEC; table contains 2004-2005 data

<i>Yr Funded:</i>	<i>Center Name</i>	<i>University Name: Director</i>	<i>Partner University 1 Director</i>	<i>Partner University 2 Director</i>	<i>Partner University 3 Director</i>	<i>Partner University 4 Director</i>
2002	Compact High-Performance Cooling Technologies	Purdue Univ. Garimella				
2002	Engineering Logistics and Distribution	Univ. of Arkansas Meller	Clemson Univ. Ferrell	Lehigh Univ. Zimmers	Oklahoma State Univ. Ingalis	Texas Tech Univ. Collins
2002	Identification Technology Research	West Virginia Univ. Hornak				
2002	Plasmas & Lasers in Advanced Manufacturing	Univ. of Virginia Gupta	Univ. of Michigan Mazumder	Southern Methodist Univ. Radovan		
2003	Communications Circuits & Systems	Arizona State Univ. Kiaei	Rensselaer Polytechnic Institute Shur	Ohio State Univ. Volakis	Univ. of Arizona Rodriguez	Univ. of Hawaii Iskander
2003	E-Design Manufacturing	Univ. of Pittsburgh Nnaji (Lovell)	Univ. of Massachusetts Grosse	Univ. of Central Florida Crumpton-Young	Virginia Tech Terpenny	Carnegie Mellon Univ. Antaki
2003	Experimental Research in Computer Systems	Georgia Tech University Schwan				
2003	Fuel Cell Center	Univ. of South Carolina Van Zee				
2004	Friction Stir Processing	South Dakota School of Mines and Tech Patnaik	Univ. South Carolina Reynolds	Brigham Young Univ. Nelson	Univ. of Missouri- Rolla Mishra	
2004	Multiphase Transport Phenomena	Michigan State Univ. Petty	Univ. of Tulsa Mohan	Univ. of Akron Chase	Univ. of Central Florida Kumar	
2004	Safety, Security, Rescue Research Center	Univ. of South Florida Murphy	Univ. of Minnesota Voyles			
2004	Wireless Internet Center for Advanced Technology	Polytechnic Univ. of New York Batoni	Columbia Univ. Misra	Univ. of Virginia Horowitz		
2005	Childrens Injury Prevention Science	Children's Hospital of Philadelphia Winston				
2005	Computational Materials Design	Pennsylvania State Univ. Liu	Georgia Institute of Tech. McDowell			
2005	Information Protection	Iowa State Univ. Jacobson	New Jersey Institute of Tech. Manikopoulos			
<b>New</b>						
2006	Center for High-Performance Reconfigurable Computing	Univ. of Florida George	George Washington Univ. Tarek El-Ghazawi	Brigham Young Univ. Brent Nelson	Virginia Tech Shawn Bohner	
2006	Center for Minimally Invasive Diagnostics	Univ. of Minnesota Erdman	Univ. of Cincinnati Haridis			
2006	Precision Forming	Ohio State Univ.	The Virginia Commonwealth Univ.			

\* Report sorted by Status, Organized by Year Funded; \* = Last year funded by NSF

\* Additional Universities and Directors for the Power Systems Engineering Center are: Howard Univ. (Momoh), Iowa State Univ. (McCalley), Texas AM (Kezunovic), Univ. of Cal-Berkeley (Oren), Univ. of IL-Urbana (Sauer), Univ. Wisconsin-Madison (Demarco), Washington State Univ.(Bose), Wichita State Univ. (Jewell)

\* Additional Universities and Directors for the Center for Engineering Logistics and Distribution are: Univ. of Florida (Welt), Univ. of Louisville (Heragu), Univ. of Nebraska (Jones), Univ. of Oklahoma (Pulz)

^ No data reported for 2005-2006 by MCEC; table contains 2004-2005 data

**Table 2: 2005-2006 OPERATING BUDGET AND TOTAL FUNDING**

Center Name	Total <sup>4</sup> Funding	NSF <sup>5</sup>		INDUSTRY			OTHER <sup>10</sup>			
		NSF/ IUCRC	Other NSF	Member <sup>6</sup> Fees	Add <sup>7</sup> Industry	State <sup>8</sup>	University <sup>9</sup>	Other <sup>11</sup> Federal	Non- <sup>12</sup> Federal	Other Cash
Advanced Polymer and Composite Engineering	\$3,202,231	\$83,390	\$413,841	\$650,000	\$0	\$0	\$0	\$2,027,000	\$0	\$28,000
Advanced Studies in Novel Surfactants	\$581,438	\$242,938	\$0	\$243,500	\$95,000	\$0	\$0	\$0	\$0	\$0
Advanced Vehicle Electronics	\$2,393,082	\$69,000	\$60,000	\$1,153,920	\$0	\$0	\$323,098	\$430,513	\$0	\$356,551
Berkeley Sensor & Actuator Center	\$7,105,238	\$83,000	\$380,000	\$1,557,840	\$1,095,248	\$49,236	\$0	\$3,618,299	\$321,615	\$0
Biocatalysis & Bioprocessing of Macromolecules	\$1,617,000	\$117,000	\$0	\$400,000	\$100,000	\$0	\$300,000	\$700,000	\$0	\$0
Biomolecular Interaction Technologies	\$360,000	\$70,000	\$0	\$290,000	\$0	\$0	\$0	\$0	\$0	\$0
Built Environment	\$1,195,500	\$43,000	\$0	\$412,500	\$0	\$0	\$0	\$315,000	\$384,000	\$41,000
Childrens Injury Prevention Science	\$492,246	\$117,246	\$0	\$375,000	\$0	\$0	\$0	\$0	\$0	\$0
Communications Circuits & Systems	\$2,575,000	\$281,000	\$10,000	\$699,000	\$585,000	\$500,000	\$200,000	\$300,000	\$0	\$0
Compact High-Performance Cooling Technologies	\$2,568,528	\$120,000	\$15,000	\$480,000	\$480,000	\$961,028	\$112,500	\$0	\$400,000	\$0
Composite & Ceramic Materials	\$4,680,610	\$185,000	\$492,000	\$897,500	\$396,299	\$133,600	\$291,746	\$1,699,132	\$585,333	\$0
Computational Materials Design	\$454,524	\$60,000	\$0	\$378,524	\$0	\$0	\$16,000	\$0	\$0	\$0
Dielectric Studies	\$2,539,000	\$200,000	\$70,000	\$544,000	\$520,000	\$70,000	\$135,000	\$1,000,000	\$0	\$0
E-Design Manufacturing	\$1,657,000	\$30,000	\$0	\$600,000	\$0	\$0	\$620,000	\$407,000	\$0	\$0
Engineering Logistics and Distribution	\$4,599,205	\$571,925	\$160,000	\$1,351,320	\$99,816	\$90,000	\$187,500	\$2,138,644	\$0	\$0
Experimental Research in Computer Systems	\$385,460	\$0	\$0	\$250,000	\$0	\$54,460	\$81,000	\$0	\$0	\$0
Friction Stir Processing	\$974,500	\$286,000	\$0	\$584,970	\$0	\$0	\$0	\$103,530	\$0	\$0
Fuel Cell Center	\$712,749	\$70,000	\$0	\$389,500	\$0	\$0	\$253,249	\$0	\$0	\$0
Health Management	\$211,242	\$35,000	\$0	\$176,242	\$0	\$0	\$0	\$0	\$0	\$0
Identification Technology Research	\$1,181,045	\$75,000	\$315,805	\$375,240	\$0	\$100,000	\$0	\$0	\$315,000	\$0
Information Protection	\$440,000	\$110,000	\$0	\$300,000	\$0	\$0	\$0	\$30,000	\$0	\$0
Information Technology and Organizations	\$167,000	\$0	\$0	\$167,000	\$0	\$0	\$0	\$0	\$0	\$0
Intelligent Maintenance Systems	\$2,034,431	\$337,714	\$126,270	\$778,500	\$34,750	\$0	\$447,500	\$56,000	\$29,529	\$224,168
Management of Information	\$2,025,246	\$0	\$60,000	\$600,000	\$0	\$0	\$265,246	\$1,100,000	\$0	\$0
Measurement and Control Engineering*	\$735,103	\$104,350	\$151,866	\$282,000	\$16,800	\$0	\$65,987	\$64,100	\$0	\$50,000
Membrane Applied Science and Technology	\$1,058,700	\$231,000	\$0	\$562,500	\$63,200	\$0	\$202,000	\$0	\$0	\$0
Microcontamination Control	\$50,000	\$10,000	\$0	\$40,000	\$0	\$0	\$0	\$0	\$0	\$0
Multiphase Transport Phenomena	\$300,000	\$120,000	\$0	\$120,000	\$0	\$0	\$60,000	\$0	\$0	\$0
Nondestructive Evaluation	\$5,329,876	\$99,000	\$217,579	\$420,000	\$0	\$499,984	\$70,372	\$3,347,118	\$116,638	\$559,185
Plasmas & Lasers in Advanced Manufacturing	\$860,000	\$80,000	\$0	\$170,000	\$0	\$50,000	\$0	\$500,000	\$60,000	\$0
Power Systems Engineering	\$3,534,000	\$750,000	\$0	\$1,670,000	\$104,000	\$0	\$50,000	\$935,000	\$25,000	\$0
Precision Metrology	\$480,000	\$50,000	\$0	\$330,000	\$0	\$100,000	\$0	\$0	\$0	\$0
Repair of Buildings and Bridges with Composites	\$746,000	\$141,000	\$0	\$405,000	\$0	\$0	\$200,000	\$0	\$0	\$0
Safety, Security, Rescue Research Center	\$614,482	\$130,000	\$0	\$295,000	\$75,000	\$0	\$0	\$114,482	\$0	\$0
Silicon Wafer Engineering and Defect Science	\$711,000	\$150,000	\$0	\$450,000	\$0	\$0	\$0	\$0	\$0	\$111,000
Tree Genetics Research	\$2,398,000	\$86,000	\$0	\$325,000	\$11,000	\$0	\$506,000	\$890,000	\$580,000	\$0
Virtual Proving Ground Simulation	\$705,356	\$0	\$150,000	\$555,356	\$0	\$0	\$0	\$0	\$0	\$0
Water Quality	\$3,799,686	\$103,000	\$0	\$900,300	\$1,960,792	\$478,297	\$357,297	\$0	\$0	\$0
Wireless Internet Center for Advanced Technology	\$825,000	\$170,000	\$0	\$515,000	\$0	\$0	\$140,000	\$0	\$0	\$0
<b>Grand Mean</b>	<b>\$1,699,987</b>	<b>\$138,758</b>	<b>\$67,240</b>	<b>\$530,634</b>	<b>\$144,536</b>	<b>\$79,144</b>	<b>\$125,243</b>	<b>\$507,072</b>	<b>\$72,234</b>	<b>\$35,126</b>
<b>Grand Sum</b>	<b>\$66,299,478</b>	<b>\$5,411,563</b>	<b>\$2,622,361</b>	<b>\$20,694,712</b>	<b>\$5,636,905</b>	<b>\$3,086,605</b>	<b>\$4,884,495</b>	<b>\$19,775,818</b>	<b>\$2,817,115</b>	<b>\$1,369,904</b>

\* Report sorted Alphabetically by Center

^ No data reported for 2005-2006 by MCEC; table contains 2004-2005 data

**Table 3: 2005-2006 CAPITAL AND IN-KIND SUPPORT**

CenterName	Capital and In-Kind Support <sup>13</sup>							Overhead	Budget	
	Total Funding	Total Cap In-Kind	Equipment	Facilities	Personnel	Software	Other Support	% to Mem <sup>14</sup>	Typical <sup>5</sup>	Admin <sup>6</sup>
Advanced Polymer and Composite Engineering	\$3,202,231	\$710,000	\$0	\$7,500	\$2,500	\$700,000	\$0	0	49	25
Advanced Studies in Novel Surfactants	\$581,438	\$150,500	\$59,500	\$91,000	\$0	\$0	\$0	0	0	0
Advanced Vehicle Electronics	\$2,393,082	\$510,000	\$500,000	\$0	\$0	\$10,000	\$0	46	46	5
Berkeley Sensor & Actuator Center	\$7,105,238	\$650,000	\$650,000	\$0	\$0	\$0	\$0	0	52	9
Biocatalysis & Bioprocessing of Macromolecules	\$1,617,000	\$100,000	\$100,000	\$0	\$0	\$0	\$0	10	71	5
Biomolecular Interaction Technologies	\$360,000	\$210,000	\$100,000	\$50,000	\$50,000	\$5,000	\$5,000	11	46	0
Built Environment	\$1,195,500	\$0	\$0	\$0	\$0	\$0	\$0	0	52	12
Childrens Injury Prevention Science	\$492,246	\$7,570	\$0	\$0	\$7,570	\$0	\$0	0	35	14
Communications Circuits & Systems	\$2,575,000	\$7,549,000	\$5,884,000	\$0	\$55,000	\$1,610,000	\$0	10	50	75
Compact High-Performance Cooling Technologies	\$2,568,528	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0
Composite & Ceramic Materials	\$4,680,610	\$172,000	\$142,600	\$0	\$0	\$29,400	\$0	0	55	10
Computational Materials Design	\$454,524	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0
Dielectric Studies	\$2,539,000	\$2,400,000	\$1,500,000	\$700,000	\$200,000	\$0	\$0	0	43	15
E-Design Manufacturing	\$1,657,000	\$500,000	\$0	\$0	\$0	\$500,000	\$0	17	49	18
Engineering Logistics and Distribution	\$4,599,205	\$557,327	\$245,000	\$100,000	\$162,327	\$50,000	\$0	18	38	22
Experimental Research in Computer Systems	\$385,460	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0
Friction Stir Processing	\$974,500	\$0	\$0	\$0	\$0	\$0	\$0	44	44	20
Fuel Cell Center	\$712,749	\$0	\$0	\$0	\$0	\$0	\$0	0	45	12
Health Management	\$211,242	\$0	\$0	\$0	\$0	\$0	\$0	0	0	46
Identification Technology Research	\$1,181,045	\$0	\$0	\$0	\$0	\$0	\$0	0	46	10
Information Protection	\$440,000	\$0	\$0	\$0	\$0	\$0	\$0	8	46	10
Information Technology and Organizations	\$167,000	\$75,000	\$0	\$75,000	\$0	\$0	\$0	5	0	25
Intelligent Maintenance Systems	\$2,034,431	\$136,000	\$36,000	\$0	\$100,000	\$0	\$0	0	53	10
Management of Information	\$2,025,246	\$0	\$0	\$0	\$0	\$0	\$0	0	51	10
Measurement and Control Engineering*	\$735,103	\$98,500	\$31,000	\$0	\$37,500	\$29,000	\$1,000	0	45	30
Membrane Applied Science and Technology	\$1,058,700	\$0	\$0	\$0	\$0	\$0	\$0	6	51	25
Microcontamination Control	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	15	57	70
Multiphase Transport Phenomena	\$300,000	\$60,000	\$0	\$0	\$0	\$60,000	\$0	51	0	25
Nondestructive Evaluation	\$5,329,876	\$0	\$0	\$0	\$0	\$0	\$0	0	47	12
Plasmas & Lasers in Advanced Manufacturing	\$860,000	\$20,000	\$20,000	\$0	\$0	\$0	\$0	0	0	20
Power Systems Engineering	\$3,534,000	\$186,500	\$150,000	\$0	\$16,500	\$20,000	\$0	5	49	15
Precision Metrology	\$480,000	\$1,105,000	\$1,000,000	\$0	\$105,000	\$0	\$0	0	43	0
Repair of Buildings and Bridges with Composites	\$746,000	\$0	\$0	\$0	\$0	\$0	\$0	9	46	0
Safety, Security, Rescue Research Center	\$614,482	\$45,000	\$45,000	\$0	\$0	\$0	\$0	0	45	30
Silicon Wafer Engineering and Defect Science	\$711,000	\$0	\$0	\$0	\$0	\$0	\$0	9	9	15
Tree Genetics Research	\$2,398,000	\$3,206,000	\$150,000	\$2,500,000	\$506,000	\$15,000	\$35,000	0	52	0
Virtual Proving Ground Simulation	\$705,356	\$47,273	\$0	\$0	\$0	\$47,273	\$0	0	47	5
Water Quality	\$3,799,686	\$25,000	\$25,000	\$0	\$0	\$0	\$0	0	51	0
Wireless Internet Center for Advanced Technology	\$825,000	\$0	\$0	\$0	\$0	\$0	\$0	10	63	23
<b>Grand Mean</b>	\$1,699,987	\$474,889	\$272,772	\$90,346	\$31,856	\$78,863	\$1,051	7.03	37.85	15.97
<b>Grand Sum</b>	\$66,299,478	\$18,520,670	\$10,638,100	\$3,523,500	\$1,242,397	\$3,075,673	\$41,000	N/A	N/A	N/A

\* Report sorted Alphabetically by Center

^ No data reported for 2005-2006 by MCEC; table contains 2004-2005 data

**Table 4: 2005-2006 INDUSTRY MEMBERSHIP DESCRIPTORS**

CenterName	2005-2006 MEMBERS				LIFETIME MEMBERS			ANNUAL FEES		
	Current Members	Starting	New	Left	Life Starting	Life New	Life Left	Primary	Secondary	Tertiary
Advanced Polymer and Composite Engineering	41	66	10	35	5	105	69	\$35,000	\$25,000	\$10,000
Advanced Studies in Novel Surfactants	11	7	6	2	15	16	20	\$25,000	\$9,500	
Advanced Vehicle Electronics	18	20	5	7	11	20	12	\$75,000	\$37,500	\$10,000
Berkeley Sensor & Actuator Center	40	41	5	6	6	67	33	\$50,000		
Biocatalysis & Bioprocessing of Macromolecule	8	10	3	5	7	6	3	\$50,000		
Biomolecular Interaction Technologies	11	10	1	0	8	10	7	\$30,000	\$20,000	\$10,000
Built Environment	23	22	3	2	11	34	22	\$30,000	\$10,000	\$10,000
Child Injury Prevention Studies	8	0	0	0	6	8	0	\$50,000	\$25,000	
Communications Circuits & Systems	16	14	2	0	9	12	5	\$50,000	\$37,500	
Compact High-Performance Cooling Technologi	17	16	2	1	14	8	5	\$30,000		
Composite & Ceramic Materials	47	43	4	0	8	84	45	\$35,000	\$10,000	\$5,000
Computational Materials Design	10	0	0	0	10	10	0	\$39,500	\$15,000	
Dielectric Studies	21	23	4	6	18	66	63	\$30,000	\$8,500	
E-Design	25	24	7	6	9	23	7	\$30,000		
Engineering Logistics and Distribution	28	28	14	14	29	26	27	\$50,000	\$25,000	\$5,000
Experimental Research in Computer Systems	9	7	2	0	8	9	0	\$45,000	\$5,000	
Friction Stir Processing	23	20	5	2	20	25	2	\$35,000	\$30,000	
Fuel Cell Center	15	15	0	0	14	2	1	\$35,000		
Health Management	5	6	0	1	6	36	37	\$35,000		
Identification Technology Research	10	9	2	1	8	11	9	\$40,000		
Information Protection	11	0	0	0	11	11	0	\$30,000	\$15,000	\$10,000
Information Technology and Organizations	15	6	11	2	12	21	18	\$25,000		
Intelligent Maintenance Systems	33	19	16	2	25	31	23	\$40,000	\$12,000	
Management of Information	6	7	0	1	8	16	18	\$100,000	\$50,000	\$25,000
Measurement and Control Engineering^	11	11	0	0	14	29	32	\$35,000	\$20,000	\$9,000
Membrane Applied Science and Technology	12	8	6	2	8	28	24	\$50,000		
Microcontamination Control	8	8	0	0	26	46	64	\$40,000		
Multiphase Transport Phenomena	6	6	0	0	6	6	0	\$30,000		
Nondestructive Evaluation	12	14	1	3	14	38	40	\$35,000		
Plasmas & Lasers in Advanced Manufacturing	13	8	8	3	9	11	7	\$30,000	\$10,000	
Power Systems Engineering	39	37	3	1	17	63	41	\$40,000	\$20,000	
Precision Metrology	11	10	1	0	15	12	16	\$30,000		
Repair of Buildings and Bridges with Composite	16	14	3	1	9	22	15	\$50,000	\$25,000	\$15,000
Safety, Security, Rescue Research Center	15	13	9	7	7	14	7	\$35,000	\$10,000	
Silicon Wafer Engineering and Defect Science	13	12	1	0	6	20	13	\$50,000	\$25,000	
Tree Genetics Research	8	5	8	5	13	13	18	\$25,000		
Virtual Proving Ground Simulation	9	11	0	2	24	27	42	\$40,000	\$20,000	
Water Quality	25	33	0	8	16	36	27	\$30,000	\$12,000	\$3,000
Wireless Internet Center for Advanced Technolo	12	7	8	3	7	15	3	\$40,000		
<b>Grand Mean</b>	16.95	15.64	3.85	3.28	12.03	26.59	19.87	\$39,859	\$19,875	\$10,182
<b>Grand Sum</b>	661	610	150	128	469	1037	775			

\* Report sorted Alphabetically by Center

^ No data reported for 2005-2006 for MCEC; table contains 2004-2005 data

**Table 5: 2005-2006 HUMAN RESOURCES**

Center Name	RESEARCHERS				STUDENTS		
	Faculty <sup>18</sup> Scientists	Administrative	Post Docs	Research Staff	PhD	Masters	Undergraduate
Advanced Polymer and Composite Engineering	21	5	6	0	21	15	9
Advanced Studies in Novel Surfactants	5	2	2	0	3	1	0
Advanced Vehicle Electronics	16	1	1	4	16	24	5
Berkeley Sensor & Actuator Center	13	1	19	2	72	36	3
Biocatalysis & Bioprocessing of Macromolecules	6	1	5	0	6	3	2
Biomolecular Interaction Technologies	6	2	1	3	2	1	0
Built Environment	5	2	1	5	4	9	6
Child Injury Prevention Studies	9	1	0	0	2	0	14
Communications Circuits & Systems	36	4	4	2	66	30	5
Compact High-Performance Cooling Technologies	10	1	3	0	12	6	2
Composite & Ceramic Materials	23	5	7	8	25	15	34
Computational Materials Design	6	1	1	0	2	0	0
Dielectric Studies	17	2	4	3	6	6	2
E-Design	32	2	1	2	10	2	3
Engineering Logistics and Distribution	61	1	0	2	21	72	25
Experimental Research in Computer Systems	32	2	0	3	62	35	9
Friction Stir Processing	10	2	0	1	0	10	9
Fuel Cell Center	9	3	0	9	17	3	7
Health Management	8	2	0	0	0	0	0
Identification Technology Research	13	1	0	2	6	15	4
Information Protection	17	1	0	0	0	13	0
Information Technology and Organizations	33	6	0	3	22	1	13
Intelligent Maintenance Systems	10	4	4	2	15	12	2
Management of Information	9	1	0	5	13	3	3
Measurement and Control Engineering <sup>^</sup>	17	1	5	1	31	13	8
Membrane Applied Science and Technology	20	3	4	0	9	0	0
Microcontamination Control	7	3	0	0	8	0	0
Multiphase Transport Phenomena	17	0	0	0	6	4	0
Nondestructive Evaluation	19	8	4	15	11	14	33
Plasmas & Lasers in Advanced Manufacturing	3	1	4	0	2	1	0
Power Systems Engineering	54	0	0	5	47	3	5
Precision Metrology	19	1	0	5	4	7	3
Repair of Buildings and Bridges with Composites	7	2	1	0	5	7	7
Safety, Security, Rescue Research Center	12	1	1	0	14	0	0
Silicon Wafer Engineering and Defect Science	14	1	3	0	9	4	2
Tree Genetics Research	6	1	4	4	11	7	4
Virtual Proving Ground Simulation	2	1	0	12	0	2	6
Water Quality	30	1	11	15	26	16	6
Wireless Internet Center for Advanced Technology	24	2	1	0	24	0	0
<b>Grand Mean</b>	16.87	2.03	2.49	2.90	15.64	10.00	5.92
<b>Grand Sum</b>	658	79	97	113	610	390	231

\* Report sorted Alphabetically by Center

<sup>^</sup> No data reported for 2005-2006 by MCEC, table contains 2004-2005 data

**Table 6: 2005-2006 CENTER DIRECTOR DESCRIPTORS**

\*Includes only primary center director

CenterName	Rank	Tenure	Reports To	TIME ALLOCATION				
				Center Admin	Other Admin	Research	Teaching	Other
Advanced Polymer and Composite Engineering	Full Professor	Tenured	Dean of Engineering	10	5	35	40	10
Advanced Studies in Novel Surfactants	Full Professor	Tenured	Dean	10	5	40	35	10
Advanced Vehicle Electronics	Full Professor	Tenured	Dean	25	10	40	15	10
Berkeley Sensor & Actuator Center	no academic rank	Non-Tenure Track	Associate Dean of Research	60	30	10	0	0
Biocatalysis & Bioprocessing of Macromolecules	Full Professor	Tenured	Provost	25	20	40	10	5
Biomolecular Interaction Technologies	Full Professor	Tenured	Dean	20	40	20	20	0
Built Environment	Full Professor	Tenured	Vice Chancellor for Research	100	0	0	0	0
Childrens Injury Prevention Science	Associate Professor	Tenured	Chief, Division of General Pediatrics	5	10	80	5	0
Communications Circuits & Systems	Full Professor	Tenured	Department Chair	25	25	20	10	20
Compact High-Performance Cooling Technologies	Full Professor	Tenured	Department Head	20	5	50	20	5
Composite & Ceramic Materials	Full Professor	Tenured	Vice President for Research	30	5	30	30	5
Computational Materials Design	Full Professor	Tenured	Department Head	0	0	0	0	0
Dielectric Studies	Full Professor	Tenured	Director of Materials Research Institute	20	5	30	30	15
E-Design Manufacturing	Full Professor	Tenured	Dean	25	5	35	25	10
Engineering Logistics and Distribution	Full Professor	Tenured	Department Head	25	10	30	35	0
Experimental Research in Computer Systems	Full Professor	Tenured	Vice President for Research	10	10	40	40	0
Friction Stir Processing	no academic rank	Non-Tenure Track	Vice President of Research	15	30	45	5	5
Fuel Cell Center	Full Professor	Tenured	Dean	15	0	50	25	10
Health Management	Full Professor	Tenured	Department Chair	20	0	50	30	0
Identification Technology Research	Full Professor	Tenured	VP for Rsrch and Econ. Dev.	25	20	30	20	5
Information Protection	Associate Professor	Tenured	Vice Provost for Rsrch & Econ. Dev.	15	30	25	25	5
Information Technology and Organizations	Full Professor	Tenured	Director of CRITO	25	25	25	25	0
Intelligent Maintenance Systems	Full Professor	Tenured	Department Head	50	0	20	20	10
Management of Information	Full Professor	Tenured	Dean	5	5	60	25	5
Measurement and Control Engineering*	Full Professor	Tenured	Associate Dean of Engineering	50	0	10	40	0
Membrane Applied Science and Technology	Full Professor	Tenured	Department Chair	15	15	50	20	0
Microcontamination Control	Full Professor	Tenured	Dean	10	40	40	5	5
Multiphase Transport Phenomena	Full Professor	Tenured	Associate Dean of Engineering	20	0	40	40	0
Nondestructive Evaluation	Full Professor	Tenured	Director, Inst. for Physical Rsrch & Tech	50	5	25	15	5
Plasmas & Lasers in Advanced Manufacturing	Full Professor	Tenure Track	Department Head	20	0	40	30	10
Power Systems Engineering	Full Professor	Tenured	Dean of Engineering	40	10	25	20	5
Precision Metrology	Full Professor	Tenured	Dean	20	10	40	30	0
Repair of Buildings and Bridges with Composites	Full Professor	Tenured	Dean	15	25	30	25	5
Safety, Security, Rescue Research Center	Full Professor	Tenured	Dean of Engineering	40	10	20	20	10
Silicon Wafer Engineering and Defect Science	Full Professor	Tenured	Dean	20	5	40	30	5
Tree Genetics Research	Associate Professor	Tenured	Department Head	25	40	25	0	10
Virtual Proving Ground Simulation	Full Professor	Tenured	VP of Research	5	50	20	20	5
Water Quality	Full Professor	Tenured	Dean	30	35	20	10	5
Wireless Internet Center for Advanced Technology	Full Professor	Non-Tenure Track	Department Chair	40	0	0	0	60
<b>Grand Mean</b>				25.13	13.85	31.54	20.38	6.54

\* Report sorted Alphabetically by Center

^ No data reported for 2005-2006 by MCEC; table contains 2004-2005 data



**Table 7: 2005-2006 CENTER OUTCOMES**

Center Name:	STUDENTS RECEIVING DEGREE 20			STUDENTS HIRED BY INDUSTRY21			PUBLICATIONS 22		
	BA Grad	MA Grad	PhD Grad	BA Hired	MA Hired	PhD Hired	w/ Ctr Research	w/ IAB Members	Presentations
Advanced Polymer and Composite Engineering	7	3	6	0	1	0	22	5	62
Advanced Studies in Novel Surfactants	0	2	3	0	1	0	15	7	55
Advanced Vehicle Electronics	1	6	6	0	2	1	43	14	30
Berkeley Sensor & Actuator Center	2	18	16	0	6	8	71	6	57
Biocatalysis & Bioprocessing of Macromolecules	1	1	2	0	0	0	16	3	24
Biomolecular Interaction Technologies	0	0	0	0	0	0	6	0	3
Built Environment	3	3	1	0	1	0	10	1	32
Childrens Injury Prevention Science	4	0	0	0	0	0	4	0	12
Communications Circuits & Systems	3	7	15	3	3	5	9	4	5
Compact High-Performance Cooling Technologies	10	7	10	0	3	3	121	6	32
Composite & Ceramic Materials	20	4	10	8	4	6	46	8	113
Computational Materials Design	0	0	0	0	0	0	0	0	0
Dielectric Studies	1	2	2	0	0	0	15	3	20
E-Design Manufacturing	0	0	0	0	0	0	0	0	0
Engineering Logistics and Distribution	18	20	3	0	0	0	33	0	48
Experimental Research in Computer Systems	30	20	20	0	0	0	50	15	50
Friction Stir Processing	0	0	0	0	0	0	0	0	5
Fuel Cell Center	0	1	3	0	0	2	5	4	9
Health Management	0	0	0	0	0	0	10	2	15
Identification Technology Research	3	13	2	0	2	0	51	0	20
Information Protection	0	0	0	0	0	0	13	0	0
Information Technology and Organizations	0	0	1	0	0	0	14	0	16
Intelligent Maintenance Systems	2	2	4	0	0	1	20	2	70
Management of Information	3	2	4	0	0	0	15	2	21
Measurement and Control Engineering^	0	5	1	0	0	0	20	2	29
Membrane Applied Science and Technology	0	1	3	0	0	1	11	2	31
Microcontamination Control	0	0	2	0	1	1	8	4	16
Multiphase Transport Phenomena	0	0	0	0	0	0	0	0	0
Nondestructive Evaluation	8	11	8	3	0	2	25	1	45
Plasmas & Lasers in Advanced Manufacturing	0	0	0	0	0	0	5	2	3
Power Systems Engineering	10	20	22	13	3	8	115	30	135
Precision Metrology	0	2	3	0	0	2	9	0	10
Repair of Buildings and Bridges with Composites	0	0	0	0	1	1	9	0	18
Safety, Security, Rescue Research Center	0	1	0	0	0	0	13	1	18
Silicon Wafer Engineering and Defect Science	1	1	5	0	0	0	22	6	36
Tree Genetics Research	3	2	1	0	1	0	78	2	91
Virtual Proving Ground Simulation	0	0	0	0	1	0	0	0	5
Water Quality	0	20	14	0	0	0	23	2	53
Wireless Internet Center for Advanced Technology	0	3	4	0	0	0	4	0	9
<i>Grand Mean</i>	3.33	4.54	4.38	0.69	0.77	1.05	23.87	3.44	30.72
<i>Grand Sum</i>	130	177	171	27	30	41	931	134	1198

\* Report sorted by Alphabetically by Center

^ No data reported for 2005-2006 by MCEC; table contains 2004-2005 data

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**Table 8: 2005-2006 INTELLECTUAL PROPERTY EVENTS**

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**Table 8a: Centers Reporting One or More Intellectual Property Event Last Fiscal Year**

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<b>Intellectual Property Event</b>	<b># of Centers</b>	<b>% of Centers</b>
Invention Disclosures	13	33.33
Patent Applications	16	41.03
Software Copyrights	0	0.00
Patents Granted/Derived	9	23.08
Licensing Agreements	12	30.77
Royalties Realized	4	10.26

**Table 8b: Total Number and Means of Intellectual Property Events last Fiscal Year**

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<b>Intellectual Property Event</b>	<b>Total for all Centers</b>	<b>Mean for All Centers</b>
Invention Disclosures	75	1.92
Patent Applications	44	1.13
Software Copyrights	0	0.00
Patents Granted/Derived	18	0.46
Licensing Agreements	20	0.51
Royalties Realized	7	0.18

# APPENDIX

## FOOTNOTES AND SPECIAL CONSIDERATIONS

Footnotes appear on top of columns and/or at end of rows for each Table and are described in this Appendix.

- 1) All averages and sums exclude missing data. With the exception of percentages, data from multi-university centers has been aggregated across universities; percentages represent averages for the reporting universities.
- 2) This report includes only data on Centers which were considered active participants in the NSF IUCRC Program during the 2005-2006 fiscal year.
- 3) On Table 1, "YEAR FUNDED" indicates the year NSF gave the center the operating grant it is currently operating under.
- 4) On Table 2, "TOTAL FUNDING" refers to the total cash income coming into the Center.
- 5) On Table 2, "NSF FUNDING" refers to two kinds of support, "IUCRC FUNDING" which refers to the total support provided by the IUCRC program, including operating grant, self-sustaining Center funding, evaluator support, TIE awards, RUI/PUI awards, etc. "NSF OTHER" refers to cash support for Center operations provided by other NSF groups or divisions. Neither of these categories includes money transferred through NSF from other Federal Agencies (MIPRs).
- 6) On Table 2, "INDUSTRY MEMBERSHIP FEES" refers to the total cash membership fees from Center members.
- 7) On Table 2, "INDUSTRY OTHER" refers to additional industry cash funding for operations provided by industrial members (e.g., enhancements, donations, etc.) which is applied to the Center as a whole (e.g., income that results in outcomes shared equally by all Center members).
- 8) On Table 2, "STATE TOTAL" refers to the support provided by state government and/or an agency or program funded by state government.
- 9) On Table 2, "UNIV. TOTAL" refers to the support for the Center operating costs including salary, travel, and overhead returned to the Center. It does NOT include items such as utilities and space.
- 10) On Table 2, "OTHER" refers to any other cash support, such as contracts, received by Center researchers that would not have been received if the Center did not exist. The funding would not result in outcomes shared equally by Center members.
- 11) On Table 2, "OTHER FEDERAL AGENCY" refers to cash support for Center operations provided by other Federal funding sources, but does NOT include funding from NSF.
- 12) On Table 2, "OTHER NON-FEDERAL AGENCY" refers to cash support for Center operations provided by other non-Federal funding sources, foundations, etc.
- 13) On Table 3, "CAPITAL AND IN-KIND CONTRIBUTIONS" refers to capital support for items of value over \$25,000 and includes equipment, facilities, personnel, and software.
- 14) On Table 3, "% to MEM" refers to the overhead rate charged to industry membership fees.
- 15) On Table 3, "TYPICAL OVERHEAD" refers to the typical overhead rate charged to funding sources.
- 16) On Table 3, "ADMIN. BUDGET (%)" refers to the estimated percentage of the Center's direct operating budget allocated to administration (e.g., administrative salaries, travel, telephone).
- 17) On Table 4, "FEES" are broken down into primary, secondary, and tertiary (the latter two represent variable membership fees).
- 18) On Table 5, "FACULTY SCIENTISTS" includes the Center Director(s) and Faculty Researchers.
- 19) On Table 6, "TIME ALLOCATION" refers to allocation of director's full-time equivalent for budgetary purposes.
- 20) On Table 7, "STUDENTS RECEIVING DEGREE" refers to the number of center-supported Ph.D.'s, M.S.'s, and B.A./B.S.'s that received a degree during the reporting period.
- 21) On Table 7, "STUDENTS HIRED BY INDUSTRY" refers to the number of center-supported Ph.D.'s, M.S.'s, and B.A./B.S.'s that were hired by member companies during the reporting period.
- 22) On Table 7, "PUBLICATIONS" refers to the publications in the open literature the Center researchers produced based on Center research including publications reported that have a Center industry member as an author.