



NATIONAL SCIENCE FOUNDATION  
INDUSTRY/UNIVERSITY COOPERATIVE RESEARCH CENTERS

# FINAL Report

## *2008-2009 STRUCTURAL INFORMATION<sup>1</sup>*

- **TABLE 1:** GENERAL CENTER INFORMATION
- **TABLE 2:** OPERATING BUDGET: TOTAL FUNDING
- **TABLE 3:** CAPITAL AND IN-KIND SUPPORT
- **TABLE 4:** INDUSTRY MEMBERSHIP DESCRIPTORS
- **TABLE 5:** HUMAN RESOURCES
- **TABLE 6:** CENTER DIRECTOR DESCRIPTORS
- **TABLE 7:** CENTER OUTCOMES
- **TABLE 8:** INTELLECTUAL PROPERTY EVENTS
- **APPENDIX:** FOOTNOTES: SPECIAL CONSIDERATIONS  
(Footnotes appear on top of columns and/or at end of rows for each table and are described in the appendix on the last page).

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**January, 2010**

<sup>1</sup>**NOTE:** 2008-2009 data collected from 37/37 Center Director Surveys (100% response rate).

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**Table 1: 2008-2009 GENERAL CENTER INFORMATION\* (Sorted Chronologically)**

<b>Yr Funded:</b>	<b>Center Name</b>	<b>University Name: Director</b>	<b>Partner University 1 Director</b>	<b>Partner University 2 Director</b>	<b>Partner University 3 Director</b>	<b>Partner University 4 Director</b>
1999*	Advanced Vehicle Electronics	Auburn Univ. Lall				
1999*	Repair of Buildings and Bridges with Composites	Univ. of Miami Nanni	North Carolina State Univ. Rizkalla			
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	Missouri Univ. of Science & Tech. Dogan			
2001	Intelligent Maintenance Systems	Univ. of Cincinnati Lee	Univ. of Michigan Ni	Missouri Univ. of Science & Tech. Sarangapani		
2001	Membrane Applied Science and Technology	Univ. of Colorado at Boulder Greenberg				
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. Ingalls	Texas Tech Univ. Matis
2002	Identification Technology Research	West Virginia Univ. Hornak / Cukic	Univ. of Arizona Burgoon / Nunamaker			
2002	Plasmas & Lasers in Advanced Manufacturing	Univ. of Virginia Gupta	Univ. of Michigan - Ann Arbor Mazumder	Southern Methodist Univ. Kovacevic	Univ. of Illinois, Urbana Champagne Ruzic	
2003	Communications Circuits & Systems	Arizona State Univ. Kiaei	Rensselaer Polytechnic Institute Shur	Ohio State Univ. Volakis	Univ. of Arizona Krunz	Univ. of Hawaii Iskander
2003	E-Design	Virginia Tech Terpenny	Univ. of Massachusetts Krishnamurty	Univ. of Central Florida Geiger		
2003	Experimental Research in Computer Systems	Georgia Institute of Tech. Schwan	Ohio State Univ. Ramanathan			
2003	Fuel Cell Center	Univ. of South Carolina Van Zee				
2004	Friction Stir Processing	South Dakota School of Mines and Tech Arbegast	Missouri Univ. of Science & Tech. Mishra	Brigham Young Univ. Nelson	Univ. of South Carolina Reynolds	Wichita State Univ. Burford
2004	Multiphase Transport Phenomena	Michigan State Univ. Petty	Univ. of Tulsa Mohan	Univ. of Central Florida Kumar		
2004	Safety, Security, Rescue Research Center	Univ. of Minnesota Papanikolopoulos	Univ. of Pennsylvania Kumar	Univ. of Denver Voyles		
2004	Wireless Internet Center for Advanced Technology	Polytechnic Univ. of New York Panwar	Univ. of Virginia Horowitz	Auburn Univ. Agrawal	Virginia Tech Bose	
2005	Child Injury Prevention Studies	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				

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

IUCRC Structure Database, FY 2008-2009

a: Additional Universities and Directors for the Center for Engineering Logistics and Distribution are: Univ. of Louisville (Heragu), Univ. of Oklahoma (Pulat), Virginia Tech. (Ellis), Univ. of Missouri (Noble), and Arizona State Univ. (Villalobos)

b: Additional Universities and Directors for the Center for Advanced Forestry Systems are: Univ. of Georgia (Kane), Univ. of Maine (Wagner), and Univ. of Washington (Briggs)

<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>
2006	Center for High-Performance Reconfigurable Computing	Univ. of Florida George	Brigham Young Univ. Nelson	George Washington Univ. El-Ghazawi	Virginia Tech Athanas	
2006	Center for Minimally Invasive Diagnostics	Univ. of Minnesota Erdman	Univ. of Cincinnati Doarn			
2006	Precision Forming	Ohio State Univ. Altan	The Virginia Commonwealth Univ. Koc			
2007	Smart Vehicle Concepts	Ohio State Univ. Singh	Texas A&M Lagoudas			
2008	Advanced Forestry Systems	North Carolina State Univ. Goldfarb	Oregon State Univ. Howe	Purdue Univ. Michler	Virginia Tech Fox	Univ. of Florida Jokela
2008	Autonomic Computing	Univ. of Florida Fortes	Univ. of Arizona Hariri	Rutgers Univ. Pompili		
2009	Advanced Cutting Tools	Michigan State Univ. Kwon				
2009	Advanced Knowledge Enablement	Florida International Univ. Rishe				
2009	Advanced Space Technologies Research and Engineeri	Univ. of Florida Fitz-Coy	North Carolina State Univ. Edmonson			
2009	Advanced Sustainable Iron and Steel	Michigan Tech. Univ. Kawatra	Univ. of Utah Sohn			
2009	Bioenergy Research and Development	South Dakota School of Mines and Tech Abata	Univ. of Hawaii Turn	Kansas State Univ. Rezac	State Univ. of New York; Stony Brook Mahajan	North Carolina State Univ. Peretti
2009	Health Organization Transformation	Texas A&M Health Science Center Gamm	Georgia Institute of Tech. Lee			
2009	Particulate and Surfactant Systems	Univ. of Florida Moudgil	Columbia Univ. Somasundaran			
2009	Silicon Solar Consortium	North Carolina State Univ. Rozgonvi	Georgia Institute of Tech. Rohatgi			

**New**

2010	Center for Hybrid Multicore Productivity Research	Univ. Maryland Baltimore County Halem	Georgia Institute of Tech. Bader	Univ. of California, San Diego Brown		
2010	Center for Research in Intelligent Storage	Univ. of Minnesota Du	Univ. of California, Santa Cruz Miller			
2010	Electromagnetic Compatibility	Misouri Univ. of Science & Tech. DuBroff	Univ. of Houston Chen	Clemson Univ. Hubing		
2010	Embedded Systems	Arizona State Univ. Vrudhula	Southern Illinois Univ. Carbondale Tragoudas			
2010	Grid-Connected Advanced Power Electronic Systems	Univ. of Arkansas Mantooth	Univ. of South Carolina Dougal			
2010	Integration of Composites into Infrastructure	West Virginia Univ. GangaRao	Rutgers Univ. Balaguru	Univ. of Miami Nanni	North Carolina State Univ. Rizkalla	
2010	Net-Centrics Systems	Univ. of North Texas Kavi	Univ. of Texas, Dallas Bastani			
2010	Water and Environmental Technology	Temple Univ. Rominder	Univ. of Arizona Pepper	Arizona State Univ. Abbaszadegan		

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

IUCRC Structure Database, FY 2008-2009

a: Additional Universities and Directors for the Center for Engineering Logistics and Distribution are: Univ. of Louisville (Heragu), Univ. of Oklahoma (Pulat), Virginia Tech. (Ellis), Univ. of Missouri (Noble), and Arizona State Univ. (Villalobos)  
b: Additional Universities and Directors for the Center for Advanced Forestry Systems are: Univ. of Georgia (Kane), Univ. of Maine (Wagner), and Univ. of Washington (Briggs)

**Table 2: 2008-2009 OPERATING BUDGET AND TOTAL FUNDING**

Center Name	Total <sup>4</sup> Funding	NSF <sup>5</sup>		INDUSTRY		State <sup>8</sup>	University <sup>9</sup>	OTHER <sup>10</sup>		
		NSF/ IUCRC	Other NSF	Member <sup>6</sup> Fees	Add <sup>7</sup> Industry			Other <sup>11</sup> Federal	Non-12 Federal	Other Cash
Advanced Cutting Tools	\$280,000	\$70,000	\$0	\$210,000	\$0	\$0	\$0	\$0	\$0	\$0
Advanced Forestry Systems	\$5,892,943	\$427,800	\$50,000	\$2,504,403	\$149,000	\$139,990	\$1,281,750	\$1,025,000	\$315,000	\$0
Advanced Knowledge Enablement	\$488,800	\$179,000	\$0	\$309,800	\$0	\$0	\$0	\$0	\$0	\$0
Advanced Space Technologies Research and	\$414,224	\$22,535	\$0	\$206,689	\$35,000	\$0	\$0	\$150,000	\$0	\$0
Advanced Sustainable Iron and Steel	\$584,444	\$145,878	\$116,294	\$65,400	\$15,000	\$84,791	\$0	\$141,193	\$15,888	\$0
Advanced Vehicle Electronics	\$1,581,708	\$20,000	\$0	\$1,561,708	\$0	\$0	\$0	\$0	\$0	\$0
Autonomic Computing	\$2,464,418	\$542,028	\$683,000	\$490,000	\$48,000	\$0	\$268,253	\$127,574	\$305,563	\$0
Biocatalysis & Bioprocessing of Macromolecul	\$882,000	\$102,000	\$0	\$200,000	\$80,000	\$0	\$0	\$500,000	\$0	\$0
Bioenergy Research and Development	\$1,027,716	\$290,000	\$0	\$650,000	\$0	\$0	\$87,716	\$0	\$0	\$0
Biomolecular Interaction Technologies	\$343,000	\$43,000	\$0	\$300,000	\$0	\$0	\$0	\$0	\$0	\$0
Center for High-Performance Reconfigurable C	\$3,958,640	\$302,000	\$641,642	\$1,212,876	\$0	\$0	\$895,122	\$887,000	\$20,000	\$0
Center for Minimally Invasive Diagnostics	\$544,500	\$170,000	\$0	\$300,000	\$0	\$0	\$74,500	\$0	\$0	\$0
Child Injury Prevention Studies	\$537,076	\$152,076	\$0	\$385,000	\$0	\$0	\$0	\$0	\$0	\$0
Communications Circuits & Systems	\$2,436,340	\$626,000	\$0	\$1,086,000	\$88,000	\$85,000	\$254,340	\$267,000	\$30,000	\$0
Compact High-Performance Cooling Technolo	\$3,161,342	\$176,000	\$50,000	\$450,000	\$449,092	\$900,000	\$236,250	\$900,000	\$0	\$0
Computational Materials Design	\$440,979	\$75,000	\$0	\$365,979	\$0	\$0	\$0	\$0	\$0	\$0
Dielectric Studies	\$3,253,000	\$133,000	\$121,500	\$809,500	\$399,000	\$0	\$90,000	\$1,700,000	\$0	\$0
E-Design	\$1,033,963	\$430,000	\$140,000	\$463,963	\$0	\$0	\$0	\$0	\$0	\$0
Engineering Logistics and Distribution	\$4,197,713	\$683,943	\$313,837	\$1,946,039	\$79,947	\$5,464	\$551,503	\$409,596	\$207,384	\$0
Experimental Research in Computer Systems	\$1,491,004	\$65,000	\$0	\$462,500	\$121,346	\$0	\$0	\$0	\$50,000	\$792,158
Friction Stir Processing	\$2,367,830	\$578,999	\$75,000	\$766,275	\$0	\$345,936	\$601,620	\$0	\$0	\$0
Fuel Cell Center	\$611,250	\$140,000	\$0	\$271,250	\$0	\$0	\$200,000	\$0	\$0	\$0
Health Organization Transformation	\$994,609	\$120,000	\$0	\$350,000	\$0	\$0	\$150,000	\$225,609	\$0	\$149,000
Identification Technology Research	\$3,714,958	\$105,000	\$0	\$714,562	\$0	\$0	\$0	\$0	\$0	\$2,895,396
Information Protection	\$150,000	\$60,000	\$0	\$90,000	\$0	\$0	\$0	\$0	\$0	\$0
Intelligent Maintenance Systems	\$2,438,154	\$281,578	\$599,999	\$851,000	\$109,000	\$0	\$137,180	\$0	\$0	\$459,397
Membrane Applied Science and Technology	\$534,581	\$53,000	\$51,824	\$379,757	\$0	\$0	\$50,000	\$0	\$0	\$0
Multiphase Transport Phenomena	\$555,000	\$135,000	\$0	\$420,000	\$0	\$0	\$0	\$0	\$0	\$0
Particulate and Surfactant Systems	\$1,256,150	\$340,000	\$0	\$539,500	\$320,000	\$0	\$56,650	\$0	\$0	\$0
Plasmas & Lasers in Advanced Manufacturing	\$1,557,143	\$169,000	\$0	\$474,183	\$0	\$0	\$128,960	\$785,000	\$0	\$0
Precision Forming	\$447,500	\$80,500	\$0	\$287,000	\$80,000	\$0	\$0	\$0	\$0	\$0
Repair of Buildings and Bridges with Composit	\$954,939	\$112,000	\$0	\$669,479	\$0	\$0	\$173,460	\$0	\$0	\$0
Safety, Security, Rescue Research Center	\$790,440	\$361,000	\$0	\$339,440	\$75,000	\$0	\$15,000	\$0	\$0	\$0
Silicon Solar Consortium	\$709,500	\$222,000	\$0	\$487,500	\$0	\$0	\$0	\$0	\$0	\$0
Smart Vehicle Concepts	\$1,036,125	\$130,000	\$0	\$510,000	\$0	\$0	\$320,045	\$76,080	\$0	\$0
Water Quality	\$1,631,128	\$190,000	\$0	\$351,000	\$451,903	\$618,225	\$20,000	\$0	\$0	\$0
Wireless Internet Center for Advanced Technol	\$8,008,964	\$765,000	\$3,412,120	\$1,850,000	\$188,000	\$210,000	\$366,000	\$1,217,844	\$0	\$0
<b>Grand Mean</b>	<b>\$1,696,543</b>	<b>\$229,685</b>	<b>\$169,060</b>	<b>\$630,562</b>	<b>\$72,656</b>	<b>\$64,579</b>	<b>\$161,036</b>	<b>\$227,349</b>	<b>\$25,509</b>	<b>\$116,107</b>
<b>Grand Sum</b>	<b>\$62,772,081</b>	<b>\$8,498,337</b>	<b>\$6,255,216</b>	<b>\$23,330,803</b>	<b>\$2,688,288</b>	<b>\$2,389,406</b>	<b>\$5,958,349</b>	<b>\$8,411,896</b>	<b>\$943,835</b>	<b>\$4,295,951</b>

\* Report sorted Alphabetically by Center

**Table 3: 2008-2009 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>15</sup>	Admin <sup>16</sup>
Advanced Cutting Tools	\$280,000	\$55,000	\$50,000	\$0	\$5,000	\$0	\$0	0	15	15
Advanced Forestry Systems	\$5,892,943	\$1,738,021	\$640,000	\$565,000	\$358,021	\$55,000	\$120,000	0	49	3
Advanced Knowledge Enablement	\$488,800	\$341,452	\$89,452	\$0	\$0	\$252,000	\$0	0	42	20
Advanced Space Technologies Research and E	\$414,224	\$0	\$0	\$0	\$0	\$0	\$0			
Advanced Sustainable Iron and Steel	\$584,444	\$0	\$0	\$0	\$0	\$0	\$0	0	56	10
Advanced Vehicle Electronics	\$1,581,708	\$0	\$0	\$0	\$0	\$0	\$0	46	46	2
Autonomic Computing	\$2,464,418	\$0	\$0	\$0	\$0	\$0	\$0	0	46.5	25
Biocatalysis & Bioprocessing of Macromolecul	\$882,000	\$150,000	\$0	\$0	\$150,000	\$0	\$0	10	62	5
Bioenergy Research and Development	\$1,027,716	\$0	\$0	\$0	\$0	\$0	\$0	10	37.5	13
Biomolecular Interaction Technologies	\$343,000	\$0	\$0	\$0	\$0	\$0	\$0	10	46	5
Center for High-Performance Reconfigurable Co	\$3,958,640	\$1,462,000	\$262,000	\$0	\$0	\$1,200,000	\$0	0	46.5	10
Center for Minimally Invasive Diagnostics	\$544,500	\$0	\$0	\$0	\$0	\$0	\$0	49.5	49.5	20
Child Injury Prevention Studies	\$537,076	\$0	\$0	\$0	\$0	\$0	\$0	0	64.5	13
Communications Circuits & Systems	\$2,436,340	\$9,015,000	\$5,000,000	\$4,000,000	\$15,000	\$0	\$0	10	51	2
Compact High-Performance Cooling Technologi	\$3,161,342	\$0	\$0	\$0	\$0	\$0	\$0	0	52.5	5
Computational Materials Design	\$440,979	\$0	\$0	\$0	\$0	\$0	\$0	0	48	17
Dielectric Studies	\$3,253,000	\$330,000	\$0	\$0	\$330,000	\$0	\$0	0	48	20
E-Design	\$1,033,963	\$378,000	\$0	\$0	\$0	\$378,000	\$0	0	57	6
Engineering Logistics and Distribution	\$4,197,713	\$65,000	\$0	\$25,000	\$40,000	\$0	\$0	16	46	10
Experimental Research in Computer Systems	\$1,491,004	\$31,312	\$31,312	\$0	\$0	\$0	\$0	0	51	6
Friction Stir Processing	\$2,367,830	\$85,000	\$0	\$0	\$0	\$0	\$85,000	0	37.5	25
Fuel Cell Center	\$611,250	\$0	\$0	\$0	\$0	\$0	\$0	0	44	30
Health Organization Transformation	\$994,609	\$300,000	\$0	\$0	\$300,000	\$0	\$0	10	45.5	23.2
Identification Technology Research	\$3,714,958	\$0	\$0	\$0	\$0	\$0	\$0	0	47	10
Information Protection	\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	8	48	40
Intelligent Maintenance Systems	\$2,438,154	\$50,000	\$0	\$0	\$50,000	\$0	\$0	0	56	10
Membrane Applied Science and Technology	\$534,581	\$0	\$0	\$0	\$0	\$0	\$0	6	51.5	26.3
Multiphase Transport Phenomena	\$555,000	\$120,000	\$0	\$0	\$0	\$120,000	\$0	10	52	50
Particulate and Surfactant Systems	\$1,256,150	\$155,167	\$146,923	\$0	\$0	\$6,744	\$1,500	0	46.5	33
Plasmas & Lasers in Advanced Manufacturing	\$1,557,143	\$160,000	\$110,000	\$0	\$0	\$50,000	\$0	0	51.5	16
Precision Forming	\$447,500	\$305,000	\$5,000	\$0	\$0	\$300,000	\$0	11	52	90
Repair of Buildings and Bridges with Composite	\$954,939	\$200,000	\$0	\$0	\$0	\$0	\$200,000	0	25	0
Safety, Security, Rescue Research Center	\$790,440	\$750,000	\$50,000	\$100,000	\$100,000	\$500,000	\$0	47	51	5
Silicon Solar Consortium	\$709,500	\$0	\$0	\$0	\$0	\$0	\$0	10	9.5	18
Smart Vehicle Concepts	\$1,036,125	\$0	\$0	\$0	\$0	\$0	\$0	11	50	12.5
Water Quality	\$1,631,128	\$0	\$0	\$0	\$0	\$0	\$0	0	51.5	10
Wireless Internet Center for Advanced Technolo	\$8,008,964	\$0	\$0	\$0	\$0	\$0	\$0	10	37.6	20
<b>Grand Mean</b>	\$1,696,543	\$424,080	\$172,559	\$126,757	\$36,433	\$77,344	\$10,986	7.63	46.39	17.39
<b>Grand Sum</b>	\$62,772,081	\$15,690,952	\$6,384,687	\$4,690,000	\$1,348,021	\$2,861,744	\$406,500	N/A	N/A	N/A

\* Report sorted Alphabetically by Center  
a: University does not reduce overhead, but matches 25% of membership fees

**Table 4: 2008-2009 INDUSTRY MEMBERSHIP DESCRIPTORS**

<i>CenterName</i>	<b>2008-2009 MEMBERS</b>				<b>LIFETIME MEMBERS</b>			<b>ANNUAL FEES</b>		
	<i>Current Members</i>	<i>Starting</i>	<i>New</i>	<i>Left</i>	<i>Life Starting</i>	<i>Life New</i>	<i>Life Left</i>	<i>Primary</i>	<i>Secondary</i>	<i>Tertiary</i>
Advanced Cutting Tools	6	0	0	0	6	6	0	\$30,000	\$15,000	\$0
Advanced Forestry Systems	89	68	33	12	68	101	12	\$25,000	\$5,000	\$0
Advanced Knowledge Enablement	10	0	0	0	10	10	0	\$24,000	\$0	\$0
Advanced Space Technologies Research and E	11	0	0	0	11	11	0	\$35,000	\$15,000	\$0
Advanced Sustainable Iron and Steel	7	0	0	0	7	7	0	\$50,000	\$25,000	\$0
Advanced Vehicle Electronics	23	21	4	2	11	36	23	\$75,000	\$37,500	\$0
Autonomic Computing	13	13	2	2	13	15	2	\$35,000	\$0	\$0
Biocatalysis & Bioprocessing of Macromolecul	4	6	0	2	7	9	10	\$50,000	\$25,000	\$0
Bioenergy Research and Development	16	0	0	0	16	16	0	\$50,000	\$20,000	\$0
Biomolecular Interaction Technologies	11	11	3	3	8	15	12	\$30,000	\$20,000	\$10,000
Center for High-Performance Reconfigurable Co	27	31	5	9	21	50	13	\$35,000	\$0	\$0
Center for Minimally Invasive Diagnostics	4	8	0	4	7	8	4	\$50,000	\$0	\$0
Child Injury Prevention Studies	9	9	1	1	6	4	1	\$50,000	\$25,000	\$0
Communications Circuits & Systems	26	20	7	1	9	29	12	\$50,000	\$17,500	\$0
Compact High-Performance Cooling Technologi	19	20	2	3	14	19	14	\$30,000	\$0	\$0
Computational Materials Design	11	11	2	2	10	14	3	\$39,000	\$15,000	\$0
Dielectric Studies	23	30	2	9	18	27	18	\$30,000	\$8,500	\$0
E-Design	20	32	1	13	9	37	24	\$30,000	\$0	\$0
Engineering Logistics and Distribution	28	27	8	7	29	58	59	\$50,000	\$25,000	\$5,000
Experimental Research in Computer Systems	14	14	3	3	8	20	6	\$45,000	\$5,000	\$0
Friction Stir Processing	25	30	0	5	20	25	15	\$35,000	\$30,000	\$0
Fuel Cell Center	8	13	1	6	14	0	0	\$35,000	\$0	\$0
Health Organization Transformation	10	0	0	0	10	10	0	\$50,000	\$0	\$0
Identification Technology Research	26	19	7	0	8	33	14	\$40,000	\$0	\$0
Information Protection	4	5	1	2	11	14	10	\$30,000	\$15,000	\$0
Intelligent Maintenance Systems	32	36	9	13	25	54	48	\$40,000	\$12,000	\$0
Membrane Applied Science and Technology	8	8	1	1	8	32	32	\$50,000	\$0	\$0
Multiphase Transport Phenomena	10	6	4	0	6	10	0	\$30,000	\$0	\$0
Particulate and Surfactant Systems	43	0	0	0	43	43	0	\$25,000	\$15,000	\$5,000
Plasmas & Lasers in Advanced Manufacturing	21	14	8	1	9	30	13	\$30,000	\$10,000	\$0
Precision Forming	14	16	5	7	18	25	11	\$30,000	\$15,000	\$10,000
Repair of Buildings and Bridges with Composite	14	16	1	3	9	37	32	\$50,000	\$15,000	\$1,000
Safety, Security, Rescue Research Center	10	8	2	0	7	19	18	\$35,000	\$10,000	\$0
Silicon Solar Consortium	15	0	0	0	15	15	0	\$50,000	\$25,000	\$10,000
Smart Vehicle Concepts	14	14	3	3	14	17	3	\$50,000	\$40,000	\$10,000
Water Quality	36	41	2	7	16	59	41	\$30,000	\$10,000	\$3,000
Wireless Internet Center for Advanced Technolo	34	32	4	2	7	43	9	\$40,000	\$0	\$0
<b>Grand Mean</b>	18.78	15.65	3.27	3.32	14.27	25.89	12.41	\$39,541	\$18,220	\$6,750
<b>Grand Sum</b>	695	579	121	123	528	958	459			

\* Report sorted Alphabetically by Center  
a: Tertiary membership fee for Precision Forming is \$10K or less

**Table 5: 2008-2009 HUMAN RESOURCES**

Center Name	RESEARCHERS				STUDENTS		
	Faculty <sup>18</sup> Scientists	Administrative	Post Docs	Research Staff	PhD	Masters	Undergraduate
Advanced Cutting Tools	3	0	0	0	3	0	2
Advanced Forestry Systems	33	6	7	21	24	14	10
Advanced Knowledge Enablement	10	1	0	2	1	0	2
Advanced Space Technologies Research and Engineering Cent 10		2	0	0	6	9	0
Advanced Sustainable Iron and Steel	5	1	0	1	7	0	6
Advanced Vehicle Electronics	18	3	2	0	14	22	6
Autonomic Computing	9	1	0	2	16	9	0
Biocatalysis & Bioprocessing of Macromolecules	3	1	4	0	13	0	0
Bioenergy Research and Development	26	0	1	0	8	17	2
Biomolecular Interaction Technologies	3	1	0	1	2	0	4
Center for High-Performance Reconfigurable Computing	15	3	3	0	35	18	9
Center for Minimally Invasive Diagnostics	9	2	1	0	6	7	7
Child Injury Prevention Studies	10	1	2	10	3	3	2
Communications Circuits & Systems	42	2	4	6	71	34	2
Compact High-Performance Cooling Technologies	13	1	3	1	19	2	1
Computational Materials Design	12	4	1	0	12	0	0
Dielectric Studies	29	2	3	3	11	0	1
E-Design	13	1	2	0	6	1	0
Engineering Logistics and Distribution	50	3	2	3	27	38	26
Experimental Research in Computer Systems	39	3	0	3	31	90	6
Friction Stir Processing	17	4	2	5	9	20	32
Fuel Cell Center	8	4	6	4	9	1	5
Health Organization Transformation	14	1	0	1	5	8	18
Identification Technology Research	16	2	6	6	18	13	12
Information Protection	7	2	0	0	4	0	0
Intelligent Maintenance Systems	7	3	2	2	26	5	1
Membrane Applied Science and Technology	14	2	4	0	5	1	0
Multiphase Transport Phenomena	9	0	0	0	7	8	2
Particulate and Surfactant Systems	17	4	9	4	10	2	5
Plasmas & Lasers in Advanced Manufacturing	7	0	4	5	20	4	7
Precision Forming	3	1	2	0	7	12	6
Repair of Buildings and Bridges with Composites	11	2	1	3	8	16	8
Safety, Security, Rescue Research Center	25	1	4	0	35	38	0
Silicon Solar Consortium	6	1	3	2	6	0	0
Smart Vehicle Concepts	12	2	1	0	10	9	7
Water Quality	26	1	10	5	17	16	2
Wireless Internet Center for Advanced Technology	39	4	8	1	48	22	15
<b>Grand Mean</b>	15.95	1.95	2.62	2.46	15.11	11.86	5.57
<b>Grand Sum</b>	590	72	97	91	559	439	206

\* Report sorted Alphabetically by Center

**Table 6: 2008-2009 CENTER DIRECTOR DESCRIPTORS**

<i>*Includes only primary center director</i>				TIME ALLOCATION				
CenterName	Rank	Tenure	Reports To	Center Admin	Other Admin	Research	Teaching	Other
Advanced Cutting Tools	Full Professor	Tenured	Dean	20	10	35	25	10
Advanced Forestry Systems	Full Professor	Tenured	Dean	10	75	5	5	5
Advanced Knowledge Enablement	Full Professor	Tenured	Interim Director	10	10	40	20	20
Advanced Space Technologies Research and En	Associate Professor	Tenured		40	20	10	0	30
Advanced Sustainable Iron and Steel	Full Professor	Tenured	Vice President for Research	10	50	15	20	5
Advanced Vehicle Electronics	Full Professor	Tenured	Dean	15	0	50	30	5
Autonomic Computing	Full Professor	Tenured	Department Chair	5	5	75	10	5
Biocatalysis & Bioprocessing of Macromolecules	Full Professor	Tenured	Provost	25	20	40	10	5
Bioenergy Research and Development	Full Professor	Tenured	Vice President for Research	70	0	10	5	15
Biomolecular Interaction Technologies	Full Professor	Tenured	Dean	20	10	40	30	0
Center for High-Performance Reconfigurable Co	Full Professor	Tenured	Department Chair	15	5	50	25	5
Center for Minimally Invasive Diagnostics	Full Professor	Tenured	Department of Mechanical Engineeri	4	16	50	20	10
Child Injury Prevention Studies	Associate Professor	Tenured	Chief Scientific Officer	5	15	60	0	20
Communications Circuits & Systems	Full Professor	Tenured	Department Chair	15	15	30	20	20
Compact High-Performance Cooling Technolog	Full Professor	Tenured	Department Head	15	5	55	20	5
Computational Materials Design	Full Professor	Tenured	Department Head	20	0	70	10	0
Dielectric Studies	Full Professor	Tenured	Director of Materials Research Institu	10	1	40	40	9
E-Design	Full Professor	Tenured	Dean for College of Engineering	25	5	35	30	5
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	30	10
Friction Stir Processing	No academic rank	Non-tenure track	Vice President of Research	45	25	25	5	0
Fuel Cell Center	Full Professor	Tenured	Dean, College of Eng. & Computing	15	0	50	25	10
Health Organization Transformation	Full Professor	Tenured	Dean	15	25	35	25	0
Identification Technology Research	Full Professor	Tenured	VP for Research & Economic Develo	20	10	30	30	10
Information Protection	Full Professor	Tenured	Vice Provost for Rsrch & Econ. Dev.	15	30	25	25	5
Intelligent Maintenance Systems	Full Professor	Tenured	Department Head	50	0	20	20	10
Membrane Applied Science and Technology	Full Professor	Tenured	Department Chair	20	25	35	15	5
Multiphase Transport Phenomena	Full Professor	Tenured	Department Chairperson	20	0	35	35	10
Particulate and Surfactant Systems	Full Professor	Tenured	Dean of College of Engineering	0.5	16	54	26	3.5
Plasmas & Lasers in Advanced Manufacturing	Full Professor	Tenured	Department Chair & Dean of Engine	12	5	50	30	3
Precision Forming	Full Professor	Tenured	Department Chair	20	10	30	30	10
Repair of Buildings and Bridges with Composites	Full Professor	Tenured	Dean	15	25	45	10	5
Safety, Security, Rescue Research Center	Full Professor	Tenured	Department Head	5	10	60	15	10
Silicon Solar Consortium	Full Professor	Tenured	Department Head	8	16	33	33	10
Smart Vehicle Concepts	Full Professor	Tenured	Dept. Chair & College Dean	22	0	38	30	10
Water Quality	Full Professor	Tenured	Dean	25	25	30	10	10
Wireless Internet Center for Advanced Technolog	Full Professor	Tenured	Assoc. Provost, Research & Tech. Ini	10	20	50	15	5
<b>Grand Mean</b>				18.55	14.16	38.51	20.65	8.12

*\* Report sorted Alphabetically by Center*



**Table 7: 2008-2009 CENTER OUTCOMES**

Center Name:	STUDENTS RECEIVING DEGREE <sup>20</sup>			STUDENTS HIRED BY INDUSTRY <sup>21</sup>			PUBLICATIONS <sup>22</sup>		
	BA Grad	MA Grad	PhD Grad	BA Hired	MA Hired	PhD Hired	w/ Ctr Research	w/ IAB Members	Presentations
	Advanced Cutting Tools	0	0	1	2	0	3	1	0
Advanced Forestry Systems	1	5	8	1	3	1	33	1	62
Advanced Knowledge Enablement	1	0	0	0	0	0	1	0	3
Advanced Space Technologies Research and Engineering Ce	0	2	0	0	1	0	6	0	5
Advanced Sustainable Iron and Steel	0	0	0	0	0	0	7	0	11
Advanced Vehicle Electronics	0	7	0	0	0	0	41	6	20
Autonomic Computing	2	3	6	0	0	0	20	6	13
Biocatalysis & Bioprocessing of Macromolecules	4	8	3	0	0	0	14	0	18
Bioenergy Research and Development	0	0	0	0	0	0	0	0	36
Biomolecular Interaction Technologies	1	0	1	0	0	0	2	2	4
Center for High-Performance Reconfigurable Computing	8	8	2	0	0	1	33	3	44
Center for Minimally Invasive Diagnostics	0	4	1	0	0	0	3	0	4
Child Injury Prevention Studies	0	1	1	0	0	0	29	8	22
Communications Circuits & Systems	1	7	6	0	5	7	67	7	78
Compact High-Performance Cooling Technologies	2	2	2	0	0	1	31	3	36
Computational Materials Design	0	0	2	0	0	1	5	0	80
Dielectric Studies	0	2	3	0	0	1	42	1	45
E-Design	2	6	2	1	0	1	38	3	24
Engineering Logistics and Distribution	26	28	5	0	2	0	15	0	45
Experimental Research in Computer Systems	7	18	14	9	14	12	33	15	55
Friction Stir Processing	11	13	5	1	0	3	19	3	18
Fuel Cell Center	0	1	3	0	0	1	16	1	14
Health Organization Transformation	12	7	0	0	1	0	1	0	16
Identification Technology Research	1	6	1	7	1	0	50	0	25
Information Protection	0	0	0	0	0	5	5	0	5
Intelligent Maintenance Systems	1	7	3	0	0	1	40	3	38
Membrane Applied Science and Technology	0	2	0	0	0	0	12	4	15
Multiphase Transport Phenomena	0	5	2	0	0	1	8	4	7
Particulate and Surfactant Systems	0	1	1	0	1	0	9	2	33
Plasmas & Lasers in Advanced Manufacturing	1	2	7	0	0	1	42	5	22
Precision Forming	0	13	7	0	0	0	0	0	0
Repair of Buildings and Bridges with Composites	0	13	3	0	0	0	43	0	26
Safety, Security, Rescue Research Center	4	1	3	0	0	0	19	1	30
Silicon Solar Consortium	0	1	2	0	0	0	8	0	23
Smart Vehicle Concepts	1	2	2	0	0	0	22	1	28
Water Quality	0	1	4	0	1	1	12	0	51
Wireless Internet Center for Advanced Technology	22	9	7	0	2	2	64	2	99
<b>Grand Mean</b>	2.92	5.00	2.89	0.57	0.84	1.16	21.38	2.19	28.65
<b>Grand Sum</b>	108	185	107	21	31	43	791	81	1060

\* Report sorted by Alphabetically by Center

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***Table 8: 2008-2009 INTELLECTUAL PROPERTY EVENTS***

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***Table 8: 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	14	38%
Patent Applications	11	30%
Software Copyrights	1	3%
Patents Granted/Derived	4	11%
Licensing Agreements	5	14%
Royalties Realized	2	5%

***Table 8: 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	29	0.78
Patent Applications	30	0.81
Software Copyrights	1	0.03
Patents Granted/Derived	12	0.32
Licensing Agreements	6	0.16
Royalties Realized	4	0.11

# 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 2008-2009 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 FEDERAL AGENCY" refers to cash support for Center operations provided by other Federal funding sources, but does NOT include funding from NSF.
- 11) On Table 2, "OTHER NON-FEDERAL AGENCY" refers to cash support for Center operations provided by other non-Federal funding sources, foundations, etc.
- 12) On Table 2, "OTHER FUNDING" 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.
- 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 university Federally Negotiated Facilities and Administrative rate (indirect) 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 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 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.