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National Science Foundation
Industry/University Cooperative Research Centers
Structural Information for 1986 on Centers Funded from 1979 to 1986[1]

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[1] Data in these tables were collected during winter/spring 1986-7. Information was supplied and verified by Center Directors

TABLE 1

NERAL INFORMATION: Status, Year Begun, Univer , Center, Number of Academic Departments Participating, Total NSF Award (5 Year), FY86 Operating Budget (Excludes Overhead)

Status	Year Funded	University (Center)	No. of Dept. Participating	Total NSF Award	FY 1986 Operating Budget
Self-sustaining	1979	Rensselaer Polytechnic Institute (Center for Interactive Computer Graphics)	5	$1,030,000.00	$3,100,000.00
	1980	Univ. of Massachusetts (Center for Industry Research on Polymer)	3	$1,057,600.00	$519,166.00
		Ohio State University (Center for Welding Research)	4	$700,000.00	$7,400,000.00
	1981	~~Univ. of Rhode Island (Robotics Research Center)~~	3	$700,443.00	$304,000.00
		Case Western Reserve University (Center for Applied Polymer Research)	5	$750,000.00	$681,103.00
	1982 [1]	N.C. State Univ. (Center for Communication & Signal Processing)	2	$650,000.00	$880,500.00
		Rutgers University (Center for Ceramics Research)	9	$716,000.00	$4,069,000.00
		Pennsylvania State Univ. (Center for Dielectric Studies)	1	$700,000.00	$352,252.00
		Georgia Institute of Tech. (Material Handling Research Center)	4	$700,000.00	$701,447.00
	1983[1]	~~Texas A&M University (Hydrogen Research Center)~~	2	$600,000.00	$625,200.00
		Average for Self-sustaining:	4	$760,404.30	$1,863,266.80
2-5 years old	1984	Colorado School of Mines (Advanced Steel Processing & Products Research Center)	3	$575,000.00	$280,000.00
		N.J. Institute of Technology (Hazardous & Toxic Waste Management Center)	– [2]	$350,000.00	$2,741,127.00
		Univ. of Arizona (Optical Sciences Center) Only micro-com	4	$500,000.00	$675,000.00
		Univ. of Wyoming (Center for Mathematical Modeling & Computation)	6	$250,000.00	$491,000.00
		Univ. of Washington (Center for Process Analytical Chemistry)	3	$539,240.00	$856,000.00
		Lehigh Univ. (Center for Innovation Management Studies)	3	$355,000.00	$236,760.00
		~~West Virginia University (Fluidization and Fluid Particle Center)~~	4	$350,000.00	$436,158.00
		Northwestern Univ. (Center for Engineering Tribology)	4	$540,000.00	$475,000.00
	1985	Northeastern University (Electromagnetics)	4	$450,000.00	$625,000.00
		Rutgers University (Center for the Plastics Recycling Institute)	7	$28,000.00	$1,487,000.00
		~~Dartmouth College (Center for Cold Regions Science and Engineering)~~	3 [3]	$250,000.00	$150,000.00
		Univ. of N.C./Duke Univ./NCSU (Lymphocyte Technology Center)	4	$600,000.00	$581,250.00
		Univ. of TX Health Sci. Cntr. at San Antonio (Univ.-Indus. Coop. Res. Center)	13	$250,000.00	$923,088.00
		Univ. of Tennessee (Measurement & Control Engineering Center)	5	$250,000.00	$500,000.00
		Carnegie-Mellon Univ. (Center for Iron and Steelmaking Research)	3	$450,000.00	$340,000.00
		Univ. of Arizona (Center for Microcontamination Control)	6	$325,000.00	$914,880.00
		~~Univ. of Minnesota (Center for Biocatalytic Processing)~~	12	$250,000.00	$125,211.00
		Univ. of Texas at Arlington (Advanced Electron Devices)	4	$250,000.00	$300,000.00
		Lehigh Univ. (Chemical Process Modeling & Control Research Center)	4	$250,000.00	$433,000.00
		~~Washington Univ. (Center for Computer Aided Process Engineering)~~	4	$250,000.00	$122,195.00
		Iowa State Univ. (Center for Non-Destructive Evaluation)	6	$300,000.00	$722,344.00
		Average for 2-5 years old:	5	$350,582.86	$638,810.14
< 2 years old	1986	Alfred University (Center for Glass Research)	1	$250,000.00	$381,000.00
		Illinois Institute of Technology (Integrated Info. & Telecommunications Systems)	2	$260,000.00	$281,000.00
		Univ. of California - Berkeley (Center for Research on Integrated Sensors)	6	$450,000.00	$593,590.00
	moved	Oklahoma State University (Web Handling)	2	$225,000.00	$393,990.00
		Univ. of Florida/Purdue University (Software Engineering Research Center)	3	$500,000.00	$392,922.00
	moved	New Mexico Institute of Mining and Technology (Research Center for Energetic Materials)	2	$500,000.00	$481,024.00
		Average for 1-2 years old:	3	$364,166.67	$420,587.67

[1] These Centers have become self-sustaining since the data were collected.

[2] Five universities and colleges participate.

[3] School does not have traditional departments; three "disciplines" participate.

Structural Information for 1986
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TABLE
FUNDING: Total FY86 Budget, Breakdown by Source

Status	Abbreviated Name	1986 Budget (Including Overhead)	NSF Funding	Membership Fees	Other [A] Industry Contributions	University [B] Contribution	State Contribution	Other [C] Contributions
Self-sustaining	Rensselaer (Computer Graphics)	$3,670,000	$0	$1,500,000	$2,043,000	$0	$0	$127,000
	U. Mass. (Polymers)	$743,520	$34,770	$560,000	$0	$140,000	$0	$8,750
	Ohio State (Welding)	$8,400,000	$0	$1,200,000	$1,200,000	$3,000,000	$3,000,000	$0
	U. Rhode Island (Robotics)	$254,000	$0	$50,000	$100,000	$90,000	$10,000	$4,000
	CWRU (Applied Polymers)	$980,950	$5,000	$0	$475,000	$0	$343,000	$157,950
	NCSU (Communication/Signal Proc.)	$904,000	$50,000	$650,000	$184,000	$20,000	$0	$0
	Rutgers (Ceramics)	$4,461,000	$86,000	$945,000	$330,000	$40,000	$3,000,000	$60,000
	Penn. State (Dielectric)	$492,065	$100,000	$280,000	$0	$112,065	$0	$0
	Ga. Tech (Materials Handling)	$1,277,692	$50,000	$800,000	$0	$427,692	$0	$0
	Texas A&M (Hydrogen)	$713,000	$175,000	$40,000	$208,000	$205,000	$0	$85,000
	Average for Self-sustaining:	$2,189,623	$50,077	$602,500	$454,000	$403,476	$635,300	$44,270
2-5 years old	Colorado School of Mines (Steel)	$345,000	$150,000	$195,000	$0	$0	$0	$0
	NJIT (Hazardous/Toxic Waste Mgmt.)	$2,695,000	$75,000	$465,000	$5,000	$0	$2,150,000	$0
	U. Arizona (Optical)	$975,000	$75,000	$600,000	$0	$0	$300,000	$0
	U. Wyoming (Math. Modeling)	$510,498	$49,998	$130,000	$55,500	$150,000	$125,000	$0
	U. Washington (Analytic Chem.)	$1,120,000	$130,000	$840,000	$100,000	$50,000	$0	$0
	Lehigh (Innovation Mgmt.)	$254,500	$50,000	$160,000	$3,500	$1,000	$40,000	$0
	W. Va. U. (Fluidization Center)	$485,903	$75,000	$60,000	$25,000	$172,633	$0	$153,270
	Northwestern (Eng. Tribology)	$510,000	$110,000	$400,000	$0	$0	$0	$0
	Northeastern (Electromagnetics)	$625,000	$150,000	$405,000	$0	$70,000	$0	$0
	Rutgers (Plastics Recycling)	$1,570,000	$7,000	$750,000	$87,000	$176,000	$450,000	$100,000
	Dartmouth (Cold Regions)	$183,000	$50,000	$100,000	$25,000	$8,000	$0	$0
	UNC/Duke/NCSU (Lymphocyte)	$734,381	$317,000	$281,250	$0	$0	$0	$136,131
	U. Tex.-Health Sci at San Antonio (UICRC)	$1,054,834	$55,000	$225,000	$12,500	$386,734	$0	$375,600
	U. Tenn. (Measurement/Control)	$500,000	$50,000	$350,000	$50,000	$50,000	$0	$0
	Carnegie-Mellon/U Pitt (Iron and Steel)	$506,000	$110,000	$350,000		$0	$46,000	$0
	U. Arizona (Microcontamination)	$967,370	$75,000	$552,000	$0	$140,556	$0	$199,814
	U. Minnesota (Biocatalytic Processing)	$140,000	$50,000	$90,000	$0	$0	$0	$0
	U. Tex.-Arlington (Adv. Electron Device)	$300,000	$50,000	$250,000	$0	$0	$0	$0
	Lehigh (Chem. Process)	$470,000	$50,000	$275,000	$45,000	$0	$100,000	$0
	Washington U. (Comp. Process Eng.)	$133,500	$50,000	$83,500	$0	$0	$0	$0
	Iowa (Non-Destructive Eval.)	$784,972	$75,000	$490,000	$0	$171,827	$48,145	$0
	Average for 2-5 years old:	$707,855	$85,905	$335,798	$20,425	$65,560	$155,197	$45,944
< 2 years old	Alfred (Glass)	$381,000	$50,000	$250,000	$0	$0	$75,000	$6,000
	Ill. Inst. Tech. (Telecommunications)	$325,000	$65,000	$215,000	$30,000	$15,000	$0	$0
	U. Cal. - Berkeley (Integrated Sensors)	$668,991	$100,000	$400,000	$89,991	$0	$79,000	$0
	Oklahoma State (Web Handling)	$393,990	$50,000	$218,750	$0	$25,240	$50,000	$50,000
	U. Fla./Purdue (Software Eng.)	$488,500	$100,000	$330,000	$0		$58,500	$0
	New Mexico Inst. (Energetic Materials)	$581,024	$100,000	$415,000	$0	$66,024	$0	$0
	Average for 1-2 years old:	$473,084	$77,500	$304,792	$19,999	$21,253	$43,750	$9,333

[A] Includes items such as restricted and unrestricted cash donations, equipment & supplies, technical support.

[B] Includes items such as equipment & supplies, salaries, and returned overhead. Returned or forgiven overhead was not reported consistently; this figure may under-represent the university's contribution.

[C] Includes grants and award from public and private sources, such as D.O.E. grants, private foundation grants, etc.

Structural Information for 1986
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IDUSTRY MEMBERSHIP DESCRIPTORS: Number o urrent Members, Membership Breakdown, Membership Fee, Pre-publication Review Periods, Publication Delay

Status	University (Center)	No. of Current Members	Membership Breakdown: No. Original Members	No. New Members	No. Members Quit	Annual Membership Fee	Review Period	Maximum Publication Delay
Self-sustaining	Rensselaer (Computer Graphics)	38	5	48	15	$175,000[1]	None specified	1 year
	U. Mass. (Polymers)	17	13	12	8	$35,000	4 weeks	1 year
	Ohio State (Welding)	160	90	75	5	varies	varies	2 years
	U. Rhode Island (Robotics)	2	9	16	23	$25,000	None specified	None specified
	CWRU (Applied Polymers)	11	4	8	1	— [2]	30 days	1 year
	NCSU (Communication/Signal Proc.)	13	7	12	6	$50,000	30 days	1 year
	Rutgers (Ceramics)	27	9	24	6	$50,000	30 days	1 year
	Penn. State (Dielectric)	29	14	18	3	$20,000[1]	60 days	6 months
	Ga. Tech (Materials Handling)	22	23	12	13	$40,000	3 months	18 months
	Texas A&M (Hydrogen)	4	6	2	4	$20,000	3 months	3 months
	Average for Self-sustaining:	32	18	23	8	$51,875		
2-5 years old	Colorado School of Mines (Steel)	7	6	4	3	$32,500	60 days	1 year
	NJIT (Hazardous/Toxic Waste Mgmt.)	20	9	12	1	$30,000[1]	30 days	1 year
	U. Arizona (Optical)	12	8	5	1	$50,000	30 days	6 months
	U. Wyoming (Math. Modeling)	10	5	5	0	varies	6 months	6 months
	U. Washington (Analytic Chem.)	28	18	14	4	$30,000	1 month	6 months
	Lehigh (Innovation Mgmt.)	16	4	13	1	$10,000	45 days	indefinite
	W. Va. U. (Fluidization Center)	3	6	1	4	$30,000	30 days	reasonable time period
	Northwestern (Eng. Tribology)	14	16	3	5	$25,000	6 months	4.5 months
	Northeastern (Electromagnetics)	13	10	3	0	$50,000[1]	30 days	6 months
	Rutgers (Plastics Recycling)	30	15	24	9	$50,000	30 days	1 year
	Dartmouth (Cold Regions)	4	4	1	1	$25,000	6 months	2 years
	UNC/Duke/NCSU (Lymphocyte)	5	3	2	0	$75,000	30 days	6 months
	U. Tex.-Health Sci at San Antonio (UICRC)	3	3	0	0	$75,000	1 month	1 month
	U. Tenn. (Measurement/Control)	7	7	1	1	$50,000	1 month	6 months
	Carnegie-Mellon/U Pitt (Iron and Steel)	17	14	3	0	$17,000	30 days	None specified
	U. Arizona (Microcontamination)	22	12	16	6	$30,000	45 days	1 year
	U. Minnesota (Biocatalytic Processing)	3	3	0	0	$30,000	30 days	6 months
	U. Tex.-Arlington (Adv. Electron Device)	6	6	0	0	$50,000	6 months	6 months
	Lehigh (Chem. Process)	12	10	2	0	$25,000	None specified	1 year
	Washington U. (Comp. Process Eng.)	8	9	2	3	$15,000	None specified	None specified
	Iowa (Non-Destructive Eval.)	18	14	4	0	$35,000	30 days	6 months
	Average for 2-5 years old:	12	9	5	2	$36,725		
< 2 years old	Alfred (Glass)	10	6	4	1	$25,000	45 days	45 days
	Ill. Inst. Tech. (Telecommunications)	6	6	2	2	$35,000[1]	None specified	3 months
	U. Cal. - Berkeley (Integrated Sensors)	10	10	0	0	$40,000	90 days	None specified
	Oklahoma State (Web Handling)	11	7	4	0	$25,000	1 month	1 year
	U. Fla./Purdue (Software Eng.)	11	11	0	0	$30,000	30 days	6 months
	New Mexico Inst. (Energetic Materials)	9	9	0	0	$35,000	60 days	12 months
	Average for 1-2 years old:	10	8	2	1	$31,667		

[1] Variable membership fee; amount listed is maximum.

[2] Industry participation is via support of directed research projects; no standard membership fee.

Structural Information for 1986
Gray, Gidley & Koester

TABLE

CENTER STAFFING: Number of: Researchers (Breakdown by Type) Graduate Students, and Administrative Staff (Full- and Part-Time)

Status	Abbreviated Name	Total No. of Researchers	Researcher Breakdown			No. of Graduate Students	Administrative Staff	
			No. of Faculty Scientists	No. of FT Nonfaculty Researchers	No. of PT Nonfaculty Researchers		No. of Full-time	No. of Part-time
Self-sustaining	Rensselaer (Computer Graphics)	14	8	6	0	45	7	0
	U. Mass. (Polymers)	19	14	5	0	0	0	2
	Ohio State (Welding)	40	12	18	10	17	25	10
	U. Rhode Island (Robotics)	8	8	0	0	5	2	1
	CWRU (Applied Polymers)	16	8	6	2	11	0	3
	NCSU (Communication/Signal Proc.)	12	7	3	2	23	4	1
	Rutgers (Ceramics)	26	20	6	0	28	9	3
	Penn. State (Dielectric)	24	10	0	14	10	0	3
	Ga. Tech (Materials Handling)	26	19	3	4	5	2	2
	Texas A&M (Hydrogen)	16	2	14	0	13	3	1
	Average for Self-sustaining:	20	11	6	3	16	5	3
2-5 years old	Colorado School of Mines (Steel)	7	5	1	1	10	0	2
	NJIT (Hazardous/Toxic Waste Mgmt.)	60	50	10	0	41	4	1
	U. Arizona (Optical)	17	15	2	0	14	0	3
	U. Wyoming (Math. Modeling)	12	10	1	1	0	0	3
	U. Washington (Analytic Chem.)	16	12	3	1	11	5	3
	Lehigh (Innovation Mgmt.)	22	22	0	0	1	1	5
	W. Va. U. (Fluidization Center)	7	4	3	0	8	8	0
	Northwestern (Eng. Tribology)	10	6	4	0	12	1	1
	Northeastern (Electromagnetics)	31	25	6	0	28	4	0
	Rutgers (Plastics Recycling)	39	17	16	6	0	8	4
	Dartmouth (Cold Regions)	5	4	1	0	10	0	2
	UNC/Duke/NCSU (Lymphocyte)	15	15	0	0	4	0	1
	U. Tex.-Health Sci at San Antonio (UICRC)	23	15	0	8	6	2	1
	U. Tenn. (Measurement/Control)	12	12	0	0	16	2	2
	Carnegie-Mellon/U Pitt (Iron and Steel)	2	0	1	1	8	0	1
	U. Arizona (Microcontamination)	16	13	1	2	10	2	1
	U. Minnesota (Biocatalytic Processing)	26	26	0	0	8	0	3
	U. Tex.-Arlington (Adv. Electron Device)	6	5	1	0	15	3	0
	Lehigh (Chem. Process)	2	0	1	1	13	2	0
	Washington U. (Comp. Process Eng.)	5	4	1	0	5	1	1
	Iowa (Non-Destructive Eval.)	22	10	2	10	17		
	Average for 2-5 years old:	17	13	3	1	11	2	2
< 2 years old	Alfred (Glass)	15	13	0	2	1	0	1
	Ill. Inst. Tech. (Telecommunications)	6	6	0	0	5	0	2
	U. Cal. - Berkeley (Integrated Sensors)	4	4	0		1	0	3
	Oklahoma State (Web Handling)	29	9	0	20	15	0	3
	U. Fla./Purdue (Software Eng.)	9	8	1	0	5	0	2
	New Mexico Inst. (Energetic Materials)	14	3	2	9	3	0	3
	Average for 1-2 years old:	13	7	1	6	5	0	2

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TABLE

CENTER DIRECTOR: Rank, Tenure Track, Report To, Percentage Time per Function

Status	Abbreviated Name	Director's Rank	Director Tenured or Tenure Track?	Director Reports To	Percent Time: Center Admin.	Other Admin.	Teaching/ Research	Other
Self-sustaining	Rensselaer (Computer Graphics)	Professor	Yes	Dean of Engineering	60%	0%	40%	0%
	U. Mass. (Polymers)	Research Prof.	No	Vice Chancellor for Research	40%	20%	40%	0%
	Ohio State (Welding)	Professor	Yes	Exec. Dir, Edison Welding Inst.	75%	0%	25%	0%
	U. Rhode Island (Robotics)	Professor	Yes	Dean of Engineering	25%	0%	65%	10%
	CWRU (Applied Polymers)	Professor	Yes	Dean, Case Institute of Technology	25%	0%	75%	0%
	NCSU (Communication/Signal Proc.)	Assoc. Professor	No	Dean of Engineering	70%	0%	0%	30%
	Rutgers (Ceramics)	Dist. Professor	Yes	Director, Institute for Engineered M	50%	0%	50%	0%
	Penn. State (Dielectric)	Sr. Scientist	No	Dir., Materials Res. Lab	10%	10%	70%	10%
	Ga. Tech (Materials Handling)	Professor	Yes	Vice President for Research	35%	20%	25%	20%
	Texas A&M (Hydrogen)	Dist. Professor	Yes	Dean of Science	30%	30%	35%	5%
				Average for Self-sustaining:	42%	8%	43%	8%
2-5 years old	Colorado School of Mines (Steel)	Professor	Yes	Department Head	30%	0%	70%	0%
	NJIT (Hazardous/Toxic Waste Mgmt.)	Distinguished Professor	Yes	Assoc. V-P, Grad. Studies & Res.	65%	25%	10%	0%
	U. Arizona (Optical)	Professor	Yes	Director of Optical Sciences Cente	40%	20%	40%	0%
	U. Wyoming (Math. Modeling)	Professor	Yes	Vice President for Research	30%	20%	30%	20%
	U. Washington (Analytic Chem.)	Professor	Yes	Chemistry Chair	10%	10%	70%	10%
	Lehigh (Innovation Mgmt.)	Professor	Yes	Dean, Coll. of Business & Economics	45%	0%	55%	0%
	W. Va. U. (Fluidization Center)	Professor	Yes	Dean, College of Engineering	21%	35%	25%	19%
	Northwestern (Eng. Tribology)	Professor	Yes	Dean	25%	10%	65%	0%
	Northeastern (Electromagnetics)	Professor	Yes	Dean, College of Engineering	34%	0%	66%	0%
	Rutgers (Plastics Recycling)	Professor	Yes	Ceramics Chair	25%	25%	50%	0%
	Dartmouth (Cold Regions)	Professor	Yes	Dean,School of Engineering	20%	0%	80%	0%
	UNC/Duke/NCSU (Lymphocyte)	Adjunct Assoc. Prof.	No	Industrial Board & Academic Board	40%			
	U. Tex.-Health Sci at San Antonio (UICRC	Assoc. Professor	Yes	President, U of Tex Health Center	20%	0%	80%	0%
	U. Tenn. (Measurement/Control)	none	No	Dean, College of Engineering	100%	0%	0%	0%
	Carnegie-Mellon/U Pitt (Iron and Steel)	Professor	Yes	Dean, Carnegie Institute Technolog	10%	0%	90%	0%
	U. Arizona (Microcontamination)	Assoc. Professor	Yes	Head, Dept. of ECE	50%	0%	50%	0%
	U. Minnesota (Biocatalytic Processing)	Assoc. Professor	Yes	Dean, College of Biological Science	10%	55%	35%	0%
	U. Tex.-Arlington (Adv. Electron Device	Professor	Yes	Dean, College of Engineering	25%	25%	50%	0%
	Lehigh (Chem. Process)	Professor	Yes	Dean of Engineering	25%	0%	70%	5%
	Washington U. (Comp. Process Eng.)	Professor	Yes	Dean	20%	40%	35%	5%
	Iowa (Non-Destructive Eval.)	Professor	Yes	Dir. Research Institute	30%	37%	33%	0%
				Average for 2-5 years old:	32%	15%	50%	3%
< 2 years old	Alfred (Glass)	Professor	Yes	Dean, College of Ceramics	25%	10%	65%	0%
	Ill. Inst. Tech. (Telecommunications)	Professor	Yes	Dean of Engineering	15%	75%	10%	0%
	U. Cal. - Berkeley (Integrated Sensors)	Professor	Yes	Assoc. Dean, Interdisciplinary Stud	20%	5%	75%	0%
	Oklahoma State (Web Handling)	Professor	Yes	Vice Pres., Academic Affairs & Res	20%	70%	10%	0%
	U. Fla./Purdue (Software Eng.)	Professor	Yes	Dean, College of Engineering	50%	50%	0%	0%
	New Mexico Inst. (Energetic Materials)	Professor	No	Dir., Research & Development Div.	33%	33%	33%	0%
				Average for 1-2 years old:	27%	41%	32%	0%

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