

87-88(4)

**National Science Foundation  
Industry/University Cooperative Research Centers  
Structural Information for 1987-1988  
FINAL REPORT**

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Data in these tables were collected during 1987-88.  
Information was supplied by Center Directors.

# 1987-1988 GENEF . INFORMATION <sup>1</sup>

Status	Year Funded	University (Center)	No. of Depts. Participating	Total NSF Funding	Operating Budget (Without Overhead)
Self-sustaining	1973	MIT (Industry Composites & Polymer Processing Program)	3	\$0.	\$462,000
	1979	Ohio State (Center for Welding Research)	3	\$0	\$493,429
		RPI (Center for Interactive Computer Graphics)	5	\$0	\$5,915,000
	1980	Massachusetts (Center for Industry Research on Polymers) †	3	\$8,000	\$378,666
	1981	Casa Western Reserve (Center for Polymer Research)	6	\$13,000	\$1,063,302
	1982	Georgia Tech (Materials Handling Research Center)	4	\$48,000	\$1,042,850
		Rutgers (Center for Ceramics Research)	5	\$8,000	\$10,768,000
		Pennsylvania State (Center for Dielectric Studies)	4	\$100,000	\$414,200
		NCSU (Center for Communications & Signal Processing)	2	\$60,593	\$1,033,757
		Average for Self-sustaining:	4	\$26,399	\$2,396,800
2-5 years old	1984	Northeastern (Center for Electromagnetics Research) ✓	4	\$100,000	\$719,996
		Wyoming (Center for Mathematical Modeling/Petroleum Research)	6	\$55,000	\$711,500
		Arizona (Center for Microcontamination Control)	6	\$85,775	\$589,295
		Colorado School of Mines (Steel Research Center)	1	\$80,000	\$322,500
		Washington (Center for Process Analytical Chemistry)	3	\$248,735	\$1,069,682
		UNC/Duke (Center for Monoclonal Lymphocyte Technology)	4	\$55,000	\$370,000
		Northwestern (Center for Engineering Tribology)	4	\$75,000	\$530,000
		Arizona (Optical Sciences Center)	4	\$50,000	\$515,136
		NIJIT (Hazardous & Toxic Substance Management)	10	\$25,000	\$6,192,000
		1985	Carnegie Mellon (Center for Iron & Steelmaking Research)	3	\$75,000
	Rutgers (Center for Plastics Recycling)		4	\$12,000	\$1,101,646
	Texas -San Antonio (Health Science Center)		15	\$55,000	\$625,601
	Tennessee (Measurement & Control Engineering Center)		6	\$80,000	\$543,303
	Lehigh (Center for Innovation Management Studies)		1	\$50,000	\$338,422
	1986	Lehigh (Chemical Process Modeling & Control Research Center)	3	\$250,000	\$629,200
		Texas -Arlington (Center for Advanced Electron Devices & Systems)	2	\$55,000	\$548,102
		IIT (Integrated Information & Telecommunications Systems Center)	2	\$65,000	\$291,000
		Allred (Center for Glass Research)	2	\$145,000	\$500,000
		California -Berkeley (Berkeley Sensor and Actuator Center)	5	\$100,000	\$812,977
		Florida/Purdue (Software Engineering Research Center)	5	\$100,000	\$400,183
	New Mexico (Research Center for Energetic Materials)	2	\$100,000	\$365,645	
	Oklahoma State (Web Handling Research Center)	2	\$75,000	\$686,650	
	Average for 2-5 years old:	4	\$87,114	\$834,549	
0-2 years old	1987	NCSU (Center for Aseptic Processing & Packing Studies)	5	\$85,000	\$343,573
		S. California (Manufacturing & Automation Research Center)	4	\$400,000	\$726,506
		Iowa (Center for Simulation & Design Optimization of Mechanical Systems)	3	\$75,000	\$1,842,147
	1988	Colorado (Microwave & Millimeterwave Computer-aided Design)	1	\$50,000	\$586,281
		Average for 0-2 years old:	3	\$152,500	\$874,627

*Jones (NDE)*

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<sup>1</sup> Data is not available for the Center at the University of Puerto Rico. Thus data will not appear on any of the tables for this Center.

Status	Abbreviated Name	Total Budget (Including Overhead)	Total NSF Funding	Membership Fees	Total Other Industry Contribution	Total University Contribution	Total State Contribution	Total Other Contribution
Self-sustaining	MIT (Composites/Polymer Processing)	\$515,000	\$0	\$345,000	\$85,000	\$0	\$0	\$85,000
	Case Western (Polymers)	\$1,263,000	\$13,000	\$0	\$400,000	\$0	\$250,000	\$600,000
	Rutgers (Ceramics)	\$11,876,000	\$8,000	\$910,000	\$650,000	\$850,000	\$7,883,000	\$500,000
	NCSU (Communication/Signal Proc.)	\$1,053,130	\$60,593	\$650,000	\$342,537	\$0	\$0	\$0
	Penn. State (Dielectric Studies)	\$555,000	\$100,000	\$340,000	\$0	\$115,000	\$0	\$0
	Ga. Tech. (Materials Handling)	\$1,376,600	\$48,000	\$840,000	\$2,000	\$341,600	\$0	\$0
	Mass. (Polymers)	\$568,000	\$8,000	\$560,000	\$0	\$0	\$0	\$0
	Ohio State (Welding)	\$695,800	\$0	\$673,000	\$0	\$0	\$0	\$0
	RPI (Interactive Computer Graphics)	\$5,915,000	\$0	\$1,700,000	\$4,300,000	\$0	\$0	\$0
Average for Self-sustaining:		\$2,646,392	\$26,399	\$668,667	\$642,171	\$145,178	\$1,016,625	\$131,667
2-5 years old	Texas-San Antonio (Health Science)	\$806,875	\$55,000	\$150,000	\$250,000	\$213,125	\$0	\$0
	Lehigh (Innovation)	\$480,162	\$50,000	\$175,000	\$14,900	\$32,250	\$40,000	\$44,012
	Texas-Arlington (Adv. Electron Devices)	\$568,102	\$55,000	\$212,500	\$106,800	\$108,897	\$0	\$0
	Allred (Glass)	\$664,989	\$145,000	\$325,000	\$0	\$0	\$30,000	\$0
	FLA/Purdue (Software Eng.)	\$696,375	\$100,000	\$450,000	\$0	\$0	\$80,000	\$0
	Oklahoma State (Web Handling)	\$841,675	\$75,000	\$287,500	\$60,150	\$14,000	\$50,000	\$200,000
	New Mexico (Energetic Materials)	\$463,855	\$100,000	\$315,000	\$0	\$48,855	\$0	\$0
	Berkeley (Sensor)	\$979,125	\$100,000	\$360,000	\$335,000	\$0	\$64,125	\$120,000
	Illinois Inst. Tech. (Telecommunications)	\$315,000	\$65,000	\$230,000	\$10,000	\$0	\$0	\$0
	Lehigh (Chemical Process)	\$907,000	\$250,000	\$300,000	\$70,000	\$0	\$100,000	\$0
	Tennessee (Measurement & Control)	\$729,375	\$80,000	\$295,000	\$40,000	\$20,000	\$0	\$150,000
	Rutgers (Plastics)	\$1,527,657	\$12,000	\$600,000	\$0	\$109,683	\$400,000	\$123,951
	Washington (Process Analytical Chem.)	\$1,338,685	\$248,735	\$990,000	\$0	\$99,950	\$0	\$0
	UNC/Duke (Monoclonal Lymphocyte)	\$405,000	\$55,000	\$150,000	\$0	\$0	\$0	\$200,000
	Arizona (Optical)	\$675,000	\$50,000	\$450,000	\$0	\$0	\$175,000	\$0
	NJIT (Hazardous Substance Mgmt.)	\$6,407,560	\$25,000	\$720,000	\$0	\$20,000	\$3,087,000	\$2,340,000
	Carnegie Mellon (Iron & Steel)	\$735,000	\$75,000	\$550,000	\$50,000	\$0	\$60,000	\$0
	Northwestern (Engineering Tribology)	\$725,000	\$75,000	\$330,000	\$240,000	\$20,000	\$0	\$0
Northeastern (Electromagnetics)	\$860,740	\$100,000	\$530,000	\$0	\$130,740	\$0	\$100,000	
Colorado School of Mines (Steel)	\$595,350	\$80,000	\$325,000	\$0	\$0	\$0	\$0	
Wyoming (Math. Modeling/Petroleum)	\$839,500	\$55,000	\$200,000	\$100,000	\$101,500	\$165,000	\$140,000	
Arizona (Microcontamination)	\$661,160	\$65,775	\$505,100	\$10,000	\$0	\$50,000	\$0	
Average for 2-5 years old:		\$1,010,145	\$87,114	\$384,095	\$58,493	\$41,773	\$195,506	\$155,362
0-2 years old	Colorado (Microwave)	\$600,000	\$50,000	\$550,000	\$0	\$0	\$0	\$0
	NCSU (Aseptic Processing)	\$454,523	\$85,000	\$280,000	\$0	\$0	\$0	\$0
	S. California (Manufacturing)	\$758,013	\$400,000	\$300,000	\$0	\$0	\$0	\$0
	Iowa (Simulation & Design)	\$2,332,597	\$75,000	\$840,000	\$81,400	\$117,000	\$330,190	\$420,000
Average for 0-2 years old:		\$1,036,283	\$152,500	\$492,500	\$20,350	\$29,250	\$82,548	\$105,000

1 Center is part of Edison Welding Institute. This budget figure represents that part of the Institute's total budget that was subcontracted back to the Center.

2 Data not included because the state contribution included an interest-free loan on a new building provided by the University.

Status	Abbreviated Name	No. of Current Members	Membership Breakdown			Annual Membership Fee	Review Period	Maximum Publication Delay
			No. Original Members	No. New Members	No. Members Quit			
Self-sustaining	MIT (Composites/Polymer Processing)	5	2	20	15	2	3 months	1 year
	Case Western (Polymers)	10	4	11	5	\$0 <sup>4</sup>	30 days	1 year
	Rutgers (Ceramics)	22	8	33	19	\$35,000	30 days	1 year
	NCSU (Communication/Signal Proc.)	13	8	14	9	\$50,000	30 days	1 year
	Penn. State (Dielectric Studies)	17	20	11	14	\$20,000	3 months	6 months
	Ga. Tech. (Materials Handling)	23	23	15	15	\$40,000	6 months	18 months
	Mass. (Polymers)	16	13	13	10	\$35,000	4 weeks	1 year
	Ohio State (Welding)	192 <sup>3</sup>	1	1	1	2	2 years	2 years
RPI (Interactive Computer Graphics)	41	5	57	16	2	0	1 year	
	Average for Self-sustaining:	38	10	22	13	\$30,000		
2-5 years old	Texas-San Antonio (Health Science)	6	3	3	0	\$25,000	30 days	60 days
	Lehigh (Innovation)	16	4	14	2	\$12,500	90 days	6 months
	Texas-Arlington (Adv. Electron Devices)	6	6	1	1	2	90 days	6 months
	Allred (Glass)	13	6	8	1	\$13,000	30 days	30 days
	FLA/Purdue (Software Eng.)	15	11	4	0	\$30,000	30 days	6 months
	Oklahoma State (Web Handling)	12	8	4	0	\$25,000	30 days	1 year
	New Mexico (Energetic Materials)	10	9	1	0	\$35,000	60 days	3 years
	Berkeley (Sensor)	12	8	5	1	\$40,000	90 days	90 days
	Illinois Inst. Tech. (Telecommunications)	7	6	3	2	2	3 months	3 months
	Lehigh (Chemical Process)	12	10	4	2	\$25,000	30 days	1 year
	Tennessee (Measurement & Control)	7	7	1	1	2	None	6 months
	Rutgers (Plastics)	41	18	28	5	2	30 days	1 year
	Washington (Process Analytical Chem.)	33	22	14	3	\$30,000	6 months	1 year
	UNC/Duke (Monoclonal Lymphocyte)	2	5	0	3	\$75,000	30 days	7 months
	Arizona (Optical)	9	6	7	4	\$50,000	30 days	6 months
	NJIT (Hazardous Substance Mgmt.)	25	9	17	1	2	30 days	1 year
	Carnegie Mellon (Iron & Steel)	20	11	10	1	2	30 days	3 months
	Northwestern (Engineering Tribology)	12	14	4	6	2	120 days	120 days
	Northeastern (Electromagnetics)	12	7	7	2	\$50,000	6 months	6 months
Colorado School of Mines (Steel)	10	6	4	3	\$32,500	60 days	1 year	
Wyoming (Math. Modeling/Petroleum)	13	5	8	0	2	6 months	6 months	
Arizona (Microcontamination)	18	19	0	1	\$30,000	45 days	1 year	
	Average for 2-5 years old:	14	9	7	2	\$33,786		
0-2 years old	Colorado (Microwave)	11	10	1	0	\$50,000	60 days	6 months
	NCSU (Aseptic Processing)	8	8	0	0	\$35,000	w/univ. review	6 months
	S. California (Manufacturing)	5	3	2	0	\$100,000	0	6 months
	Iowa (Simulation & Design)	21	21	0	0	\$40,000	60 days	1 year
	Average for 0-2 years old:	11	11	1	0	\$56,250		

1 Data Not Available

2 Variable membership fee

3 Number of members of the Edison Welding Institute.

4 No set fee since all industry support is through projects.

Structural Information for 1987-1988  
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# CENTER RAFFING

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	MIT (Composites/Polymer Processing)	12	4	0	0	8	0	2
	Case Western (Polymers)	15	10	3	2	25	2	1
	Rutgers (Ceramics)	28	24	4	0	29	8	5
	Penn. State (Dielectric Studies)	10	5	0	5	10	0	2
	NCSU (Communication/Signal Proc.)	16	12	4	0	28	3	0
	Ga. Tech. (Materials Handling)	15	8	0	7	24	4	1
	Mass. (Polymers)	22	16	5	1	26	0	2
	RPI (Interactive Computer Graphics)	14	8	6	0	37	6	0
	Ohio State (Welding)	10	9	0	1	17	0	2
	<b>Average for Self-sustaining:</b>	16	11	2	2	23	3	2
2-5 years old	Texas-San Antonio (Health Science)	20	17	3	0	11	4	1
	Lehigh (Innovation)	20	19	0	1	0	1	4
	Texas-Arlington (Adv. Electron Devices)	5	4	1	0	16	2	0
	Oklahoma State (Web Handling)	28	8	0	20	20	0	3
	New Mexico (Energetic Materials)	7	2	0	5	4	0	7
	FLA/Purdue (Software Eng.)	18	16	1	1	22	2	2
	Alfred (Glass)	19	14	0	5	19	2	3
	Berkeley (Sensor)	4	4	0	0	22	0	4
	Illinois Inst. Tech. (Telecommunications)	7	7	0	0	10	1	1
	Carnegie Mellon (Iron & Steel)	8	6	2	0	6	0	1
	Lehigh (Chemical Process)	9	4	1	4	20	3	1
	Tennessee (Measurement & Control)	13	10	0	3	15	2	2
	Colorado School of Mines (Steel)	7	5	1	1	8	0	2
	Arizona (Microcontamination)	15	14	0	1	8	2	0
	Northeastern (Electromagnetics)	25	15	10	0	17	5	0
	Arizona (Optical)	15	8	0	7	11	0	2
	Rutgers (Plastics)	20	15	2	3	9	16	9
	Wyoming (Math. Modeling/Petroleum)	17	15	2	0	20	5	1
	Washington (Process Analytical Chem.)	17	11	5	1	20	8	3
	Northwestern (Engineering Tribology)	8	5	3	0	12	2	0
	UNC/Duke (Monoclonal Lymphocyte)	14	10	4	0	3	0	2
	NJIT (Hazardous Substance Mgmt.)	65	60	0	5	47	3	0
	<b>Average for 2-5 years old:</b>	16	12	2	3	15	3	2
0-2 years old	Colorado (Microwave)	13	7	6	0	10	2	0
	Iowa (Simulation & Design)	25	17	8	0	38	3	1
	NCSU (Aseptic Processing)	16	11	5	0	4	1	0
	S. California (Manufacturing)	5	5	0	0	7	2	0
	<b>Average for 0-2 years old:</b>	15	10	5	0	15	2	0

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# CENTER DIRECTOR DESCRIPTORS

Status	Abbreviated Name	Director's Rank	Director Tenured or Tenure Track?	Director Reports To	% Center Admin.	% Other Admin.	% Research	% Teaching	% Other
Self-sustaining	MIT (Composites/Polymer Processing)	Assoc. Professor	Yes	Department Head	25	0	25	25	25
	Case Western (Polymers)	Professor	Yes	Dean of Engineering	20	0	50	15	15
	Rutgers (Ceramics)	Professor	Yes	Dir., Institute of Eng. Materials	50	0	25	10	15
	Penn. State (Dielectric Studies)	Sr. Research Assoc.	No	Director, Materials Research Lab	50	0	50	0	0
	NCSU (Communication/Signal Proc.)	Professor	Yes	Dean of Engineering	50	10	40	0	0
	Ga. Tech. (Materials Handling)	Principle Res. Eng.	No	V-P Research	90	5	0	0	5
	Mass. (Polymers)	Professor	No	Vice Chancellor Research	40	30	30	0	0
	RPI (Interactive Computer Graphics)	Professor	Yes	Dean of Engineering	20	5	55	20	0
Ohio State (Welding)	Professor	Yes	Dean, College of Engineering	20	30	20	30	0	
Average for Self-sustaining:					40	9	33	11	7
2-5 years old	Texas-San Antonio (Health Science)	Professor	Yes	Pres., & Medical Dean, UTHSCSA	20	5	60	10	5
	Lehigh (Innovation)	Professor	Yes	Dean, Coll. of Business & Economics	33	17	9	33	8
	Texas-Arlington (Adv. Electron Devices)	Professor	Yes	Dean of Engineering	25	25	25	25	0
	Oklahoma State (Web Handling)	Professor	Yes	V-P Academic Affairs & Research	20	60	10	0	10
	New Mexico (Energetic Materials)	Professor	No	Research & Development Director	20	20	50	10	0
	FLA/Purdue (Software Eng.)	Professor	Yes	Policy Bd. (FL), Dept. Head/Dean (P)	22	30	29	16	2
	Allred (Glass)	Professor	Yes	Associate Dean & Provost	30	10	20	40	0
	Berkeley (Sensor)	Professor	Yes	Assoc. Dean, Interdiscpl. Studies	25	0	30	30	15
	Illinois Inst. Tech. (Telecommunications)	Professor	Yes	Dean of Engineering	45	45	10	0	0
	Carnegie Mellon (Iron & Steel)	Professor	Yes	Dean	20	10	40	20	10
	Lehigh (Chemical Process)	Professor	Yes	Dean, Coll. of Eng. & Applied Sci.	20	5	30	35	10
	Tennessee (Measurement & Control)	None	No	Dean, College of Engineering	90	0	5	5	0
	Colorado School of Mines (Steel)	Professor	Yes	Department Head	30	0	40	30	0
	Arizona (Microcontamination)	Assoc. Professor	Yes	Dept. Head, Electr. & Comp. Engr.	50	0	40	10	0
	Northeastern (Electromagnetics)	Professor	Yes	Dean of Engineering	33	0	33	33	0
	Arizona (Optical)	Professor	Yes	Director, Optical Sciences Center	20	10	70	0	0
	Rutgers (Plastics)	Professor	Yes	Dir., Institute of Eng. Materials	60	20	10	10	0
	Wyoming (Math. Modeling/Petroleum)	Professor	Yes	V-P for Research	30	20	20	10	20
	Washington (Process Analytical Chem.)	Professor	Yes	Center Faculty Director	100	0	0	0	0
	Northwestern (Engineering Tribology)	Professor	Yes	Dean, School	15	15	30	40	0
UNC/Duke (Monoclonal Lymphocyte)	Assoc. Professor	Yes	Pres., N.C. Biotechnology Center	20	10	50	20	0	
NJIT (Hazardous Substance Mgmt.)	Professor	Yes	Assoc. V-P for Academic Affairs	100	0	0	0	0	
Average for 2-5 years old:					37	14	28	17	4
0-2 years old	Colorado (Microwave)	Professor	Yes	Dean, Coll. of Eng. & Applied Scienc	20	40	30	10	0
	Iowa (Simulation & Design)	Professor	Yes	Dean of Engineering	30	10	35	25	0
	NCSU (Aseptic Processing)	Assoc. Professor	Yes	Department Head	62	0	18	20	0
	S. California (Manufacturing)	Professor	Yes	Dean, School of Engineering	20	60	10	0	10
Average for 0-2 years old:					33	28	23	14	2