


**Worcester Polytechnic Institute**  
**Report of Proposals Submitted**  
**March 2009**

Department	Principal Investigator	Co-PI	Project Title	Sponsor	Prime Sponsor (if Sub)	Program Type	Amount Requested	Cost Sharing	Voluntary Uncommitted CS Amount	Proposal #
Academic Affairs	Cyr, M.		Women in Science Conference	University of Massachusetts Worcester	Mass. Board of Higher Education	Conference/Travel	18,000	0		<a href="#">9205</a>
Subtotal: 1							18,000	0	0	
Biology and Biotechnology	Dominko, T.		De-differentiating Adult Human Fibroblasts into Stem Like Cells Using Defined Conditions	NIH		Research	263,493	0		<a href="#">08074s2</a>
	Prusty-Rao, R.		Engineering Yeast to Produce Alcohols from Xylose and Arabinose.	NSF		Research	438,683	0	25,800	<a href="#">9186</a>
Subtotal: 2							702,176	0	25,800	
Biomedical Engineering	Mendelson, Y.		A Physiology Model-Based Filter with Unsupervised Machine Learning for Real-Time Combat Casualty Care	Streamline Automation LLC	Army	Research	29,974	0	4,464	<a href="#">9212</a>
Subtotal: 1							29,974	0	4,464	
Chemical Engineering	Camesano, T.		Cranberry Juice Constituents and the Role of Iron in Inhibition of Growth and Biofilm Formation by Uropathogenic E. coli	University of Massachusetts Dartmouth	Cranberry Institute & Wisconsin Cranberry Board	Research	5,200	0		<a href="#">9199</a>
	Camesano, T.		REU Supplement for RET Site: Inquiry-based Bioengineering Research and Design Experiences for Middle-School Teachers	NSF		Education/Training	10,000	0		<a href="#">08003s1</a>
	Ma, Y.		Pd Membranes for Hydrogen Separations for UMD/ Ballard FC Gen System	Ballard	Army	Research	118,605	0		<a href="#">09137c1</a>
Subtotal: 3							133,805	0	0	
Chemistry and Biochemistry	Arguello, J.		Mycobacterium Tuberculosis Metal Transport P-type ATPases	NIH		Research	440,013	0		<a href="#">9204</a>
	Connors, R.		Synthesis and Characterization of Singlet Oxygen Generating and Storage Compounds	Battelle	Army	Research	9,493	0		<a href="#">9202</a>
Subtotal: 2							449,506	0	0	
Civil and Environmental Engineering	El-Korchi, T.	Tao, M., Ray, M., Demetry, C., Mallick, R., Albano, L.	GAANN: Fellowships in Civil Engineering to Support Sustainable Transportation Infrastructure	Dept. of Education		Education/Training	653,280	182,567		<a href="#">9201</a>
	Mallick, R.	Tao, M., Bergendahl, J.	Solar Power Generation from Asphalt Pavements and Improving Their Performance	Army		Research	340,690	0	17,847	<a href="#">9207</a>

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	Mallick, R.	Tao, M., Bergendahl, J.	Green Engineering Pavement	NSF		Research	348,440	0	15,978	<a href="#">9197</a>
	Mallick, R.		Collaboration Research: Use of Novel Heat Spreader Technology for Reduction of High Temperature Related Rutting in Asphalt Pavements	NSF		Research	157,747	0		<a href="#">9192</a>
Subtotal: 4							1,500,157	182,567	33,825	
Computer Science	Rundensteiner, E.		Complex Event Stream Analysis for Real Time Business Intelligence Services	Hewlett-Packard Labs Innovation Research Program		Research	69,814	0	25,437	<a href="#">9195</a>
Subtotal: 1							69,814	0	25,437	
Electrical and Computer Eng'g.	Clancy, T.		Improving Myoelectric Prosthesis Control with Adaptive Whitening	Excalibur Technical Services Incorporated	NIH	Research	20,002	0		<a href="#">9213</a>
	Duckworth, J.	Cyganski, D., Notarianni, K.	Fire-Ground Environment Sensor System (FESS)	FEMA		Research	960,000	0	26,322	<a href="#">9194</a>
	Pedersen, P.		Interactive Ultrasound Training System for Emergency Medicine	NIH		Research	445,176	0	17,378	<a href="#">9200</a>
	Wyglinski, A.		IEEE DySPAN 2010 Student Travel Grant	NSF		Conference Travel	33,000	0		<a href="#">9206</a>
Subtotal: 4							1,458,178	0	43,700	
Fire Protection Eng'g.	Rangwala, A.		Collaborative Research: An Analysis of Fire Performance Ratings of Large Scale Storage Commodities	NSF		Research	195,827	0	18,437	<a href="#">9210</a>
Subtotal: 1							195,827	0	18,437	
Mathematical Sciences	Tang, D.		Vascular Image Analysis System for Plaque Mechanics	VPDiagnostics, Inc.	NIH	Research	89,858	0		<a href="#">9203</a>
	Yakovlev, V.		Comprehensive Electromagnetic-Thermal-Mechanical Model for Microwave Sintering of Particulate Materials	Grenoble Institute of Technology	EADS Fondation d'Entreprise	Research	83,576	0		<a href="#">9196</a>
Subtotal: 2							173,434	0	0	
Mechanical Engineering	Fischer, G.	Padir, T., Michalson, W.	Modular System for Teaching Robotics Engineering (MySTRE)	NSF		Research	399,791	0	20,959	<a href="#">9191</a>

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	Hussein, I.	Wygliniski, A.	CPS: Small: Adaptive Price-Based Routing in Cooperative Mobile Wireless Ad Hoc Sensor Networks	NSF		Research	364,356	0	49,113	<a href="#">9211</a>
	Rong, Y.	Zeng, A.	Integration and Practice of Entrepreneurship in Engineering Education	NSF		Research	374,358	0	17,378	<a href="#">9198</a>
	Sullivan, J.		Possible Significance of Cholinergic Influence in ADHD	University of Massachusetts Worcester	NIH	Research	190,723	0		<a href="#">9208</a>
	Tryggvason, G.	Fernandez, A.	Direct Numerical Simulation of Water Electrolysis	NSF		Research	315,206	0	27,660	<a href="#">9184</a>
	Tryggvason, G.	Rundensteiner, E., Apelian, D., Pins, G., Zeng, A.	IEECI: An Advanced Engineering Degree for Professional Practice	NSF		Research	150,025	0		<a href="#">9193</a>
	Tryggvason, G.		Multiscale Simulations of Multiphase Flows	NSF		Research	1,199,967	0	27,660	<a href="#">9185</a>
	Van De Ven, J.		Quantifying the Efficiency of Liquid Piston Gas Compression	NSF		Research	251,389	0	27,635	<a href="#">9183</a>
Subtotal: 8							3,245,815	0	170,405	
Physics	Koehler, S.		Collaborative Research: Drag Rules for Quasi-Static Granular Media - Experimental and Numerical Studies	NSF		Research	6,250	0		<a href="#">08165s2</a>
Subtotal: 1							6,250	0	0	
 <b>Total: 30</b>							<b>7,982,936</b>	<b>182,567</b>	<b>322,068</b>	

**Worcester Polytechnic Institute  
Proposals Submitted by Department (FY 2009)**

Date: **March 2009**

Fiscal Year: **2008-2009**

	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Cumulative
<b>Biology and Biotechnology</b>	4	4		3	2	4		6	2				25
	3,962,154	1,472,774		5,821,862	16,402	196,923		6,892,954	702,176				19,065,245
<b>Biomedical Engineering</b>	2		2	1		1	2	1	1				10
	579,137		420,394	215,960		531,276	62,341	5,000	29,974				1,844,082
<b>Bioengineering Institute</b>		1		2									3
		150,000		894,588									1,044,588
<b>Civil and Envir Engr</b>	1		2	3	2	1	1	1	4				15
	139,951		386,053	698,446	204,834	26,953	128,771	174,968	1,500,157				3,260,133
<b>Chemistry and Biochemistry</b>	1		1	1	4				2				9
	786,119		264,205	100,000	501,565				449,506				2,101,395
<b>Chemical Engineering</b>			1	1	1	2	1	2	3				11
			6,114	19,007,473	5,000	74,092	198,870	38,116	133,805				19,463,470
<b>Computer Science</b>	2	2	2	4	3	6	2	3	1				25
	637,144	659,904	103,394	5,564,501	634,933	2,048,867	392,415	1,384,115	69,814				11,495,087
<b>Electrical and Computer Engr</b>	5	3	5	4	3	5	2	3	4				34
	1,773,802	415,718	1,100,678	862,504	905,138	340,113	139,962	764,366	1,458,178				7,760,459
<b>Fire Protection Engineering</b>	2	1	4				1	2	1				11
	515,135	313,261	584,811				570,762	375,395	195,827				2,555,191
<b>Humanities and Arts</b>	1	1		1									3
	417,540	221,355		215,333									854,228
<b>Interdisciplinary and Global</b>	1	3					2	1					7
	6,500	376,678					236,272	86,299					705,749
<b>Mathematical Science</b>			1	4	3	1	1	2	2				14
			265,000	2,744,300	217,773	408,590	99,523	1,959,819	173,434				5,868,439
<b>Mechanical Engineering</b>		6	15	7	2	3	3	3	8				47
		3,087,303	2,470,816	2,278,277	383,522	598,653	774,891	1,135,112	3,245,815				13,974,389
<b>Management</b>							1						1
							50,000						50,000
<b>Social Science &amp; Policy Studies</b>		2											2
		252,848											252,848
<b>Physics</b>	1	1	1		4			1	1				9
	275,628	285,366	299,950		823,605			15,430	6,250				1,706,229
<b>Other</b>	1		2		2				1				6
	9,109		103,852		379,911				18,000				510,872
<b>SUBTOTALS</b>	<b>21</b>	<b>24</b>	<b>36</b>	<b>31</b>	<b>26</b>	<b>23</b>	<b>16</b>	<b>25</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>232</b>
	<b>\$9,102,219</b>	<b>\$7,235,207</b>	<b>\$6,005,267</b>	<b>\$38,403,244</b>	<b>\$4,072,683</b>	<b>\$4,225,467</b>	<b>\$2,653,807</b>	<b>\$12,831,574</b>	<b>\$7,982,936</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$92,512,404</b>
<b>Add: Earmarks</b>													0
													0
<b>TOTALS</b>	<b>21</b>	<b>24</b>	<b>36</b>	<b>31</b>	<b>26</b>	<b>23</b>	<b>16</b>	<b>25</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>232</b>
	<b>\$9,102,219</b>	<b>\$7,235,207</b>	<b>\$6,005,267</b>	<b>\$38,403,244</b>	<b>\$4,072,683</b>	<b>\$4,225,467</b>	<b>\$2,653,807</b>	<b>\$12,831,574</b>	<b>\$7,982,936</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$92,512,404</b>

04/03/09 kr

**Worcester Polytechnic Institute  
Proposals Submitted by Department (FY 2008)**

Date: **March 2009**

Fiscal Year: **2007-2008**

	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Cumulative
<b>Biology and Biotechnology</b>	1		3	2	2		4	2	3				17
	33,272		446,967	889,027	66,907		3,962,154	302,520	267,789				5,968,636
<b>Biomedical Engineering</b>	2	1	1	2	2		2	1	1				12
	885,949	16,518	296,274	411,660	583,409		579,137	2,000	235,800				3,010,747
<b>Bioengineering Institute</b>		1	1	1	1				1				5
		81,944	149,971	711,868	800,350				25,000				1,769,133
<b>Civil and Envir Engr</b>			3	2	2	1	1	5	1				15
			443,391	236,275	348,125	74,916	139,951	943,450	243,132				2,429,240
<b>Chemistry and Biochemistry</b>	1	1					1						3
	1,156,495	60,005					786,119						2,002,619
<b>Chemical Engineering</b>	4			2	3			6	1				16
	1,369,614			1,507,787	315,890			1,503,718	33,514				4,730,523
<b>Computer Science</b>	4	1	2	1	4	8	2		5				27
	2,921,249	98,247	491,945	5,708	1,943,701	3,551,023	637,144		12,761,540				22,410,557
<b>Electrical and Computer Engr</b>	2	1	2	1		1	5	1	9				22
	854,359	44,912	109,127	414,697		328,714	1,773,802	375,805	2,259,278				6,160,694
<b>Fire Protection Engineering</b>	1	1	1	1			2	2	1				9
	479,095	599,640	19,867	179,467			515,135	146,386	47,822				1,987,412
<b>Humanities and Arts</b>							1						1
							417,540						417,540
<b>Interdisciplinary and Global</b>		2					1						3
		166,573					6,500						173,073
<b>Mathematical Science</b>	2		1	2	2	1		2					10
	1,476,903		62,712	957,434	676,245	296,715		1,076,325					4,546,334
<b>Mechanical Engineering</b>	7	1	6	7	1	1		4	7				34
	2,489,649	73,643	1,032,447	2,660,889	13,050	334,152		1,062,162	772,407				8,438,399
<b>Management</b>			1	2				1					4
			69,983	444,991				749,985					1,264,959
<b>Social Science &amp; Policy Studies</b>			1										1
			50,912										50,912
<b>Physics</b>		1		2	3	1	1	4	1				13
		89,998		560,764	689,084	512,179	275,628	646,050	31,168				2,804,871
<b>Other</b>				1			1		1				3
				14,000			9,109		30,000				53,109
<b>SUBTOTALS</b>	<b>24</b>	<b>10</b>	<b>22</b>	<b>26</b>	<b>20</b>	<b>13</b>	<b>21</b>	<b>28</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>195</b>
	<b>\$11,666,585</b>	<b>\$1,231,480</b>	<b>\$3,173,596</b>	<b>\$8,994,567</b>	<b>\$5,436,761</b>	<b>\$5,097,699</b>	<b>\$9,102,219</b>	<b>\$6,808,401</b>	<b>\$16,707,450</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$68,218,758</b>
<b>Add: Earmarks</b>									2				2
									1,708,000				1,708,000
<b>TOTALS</b>	<b>24</b>	<b>10</b>	<b>22</b>	<b>26</b>	<b>20</b>	<b>13</b>	<b>21</b>	<b>28</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>197</b>
	<b>\$11,666,585</b>	<b>\$1,231,480</b>	<b>\$3,173,596</b>	<b>\$8,994,567</b>	<b>\$5,436,761</b>	<b>\$5,097,699</b>	<b>\$9,102,219</b>	<b>\$6,808,401</b>	<b>\$18,415,450</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$69,926,758</b>

4/03/2009 kr

4/8/2009

**Worcester Polytechnic Institute**  
**Proposals Submitted by Department (12 Month Report Through March 2009)**

Date: **March 2009**

Fiscal Year: **2008-2009**

04/03/09 kr

	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Oct-08	Dec-08	Jan-09	Feb-09	Mar-09	Cumulative
<b>Biology and Biotechnology</b>	1 30,029	1 640,952	4 944,176	4 3,962,154	4 1,472,774		3 5,821,862	2 16,402	4 196,923		6 6,892,954	2 702,176	31 20,680,402
<b>Biomedical Engineering</b>	3 241,399		6 864,223	2 579,137		2 420,394	1 215,960		1 531,276	2 62,341	1 5,000	1 29,974	19 2,949,704
<b>Bioengineering Institute</b>					1 150,000		2 894,588						3 1,044,588
<b>Civil and Envir Engr</b>	2 365,809	3 216,337	1 26,953	1 139,951		2 386,053	3 698,446	2 204,834	1 26,953	1 128,771	1 174,968	4 1,500,157	21 3,869,232
<b>Chemistry and Biochemistry</b>		2 846,754	3 2,206,455	1 786,119		1 264,205	1 100,000	4 501,565				2 449,506	14 5,154,604
<b>Chemical Engineering</b>		3 453,359	2 479,532			1 6,114	1 19,007,473	1 5,000	2 74,092	1 198,870	2 38,116	3 133,805	16 20,396,361
<b>Computer Science</b>	1 1,499,850	4 1,060,535	3 1,419,176	2 637,144	2 659,904	2 103,394	4 5,564,501	3 634,933	6 2,048,867	2 392,415	3 1,384,115	1 69,814	33 15,474,648
<b>Electrical and Computer Engr</b>		2 115,229		5 1,773,802	3 415,718	5 1,100,678	4 862,504	3 905,138	5 340,113	2 139,962	3 764,366	4 1,458,178	36 7,875,688
<b>Fire Protection Engineering</b>		1 1,533,121		2 515,135	1 313,261	4 584,811				1 570,762	2 375,395	1 195,827	12 4,088,312
<b>Humanities and Arts</b>				1 417,540	1 221,355		1 215,333						3 854,228
<b>Interdisciplinary and Global</b>		1 149,830		1 6,500	3 376,678					2 236,272	1 86,299		8 855,579
<b>Mathematical Science</b>	1 599,399	1 759,434	3 156,116			1 265,000	4 2,744,300	3 217,773	1 408,590	1 99,523	2 1,959,819	2 173,434	19 7,383,388
<b>Mechanical Engineering</b>	3 2,531,471	6 1,594,635	8 1,347,305		6 3,087,303	15 2,470,816	7 2,278,277	2 383,522	3 598,653	3 774,891	3 1,135,112	8 3,245,815	64 19,447,800
<b>Management</b>		1 50,000	1 40,502							1 50,000			3 140,502
<b>Social Science &amp; Policy Studies</b>					2 252,848								2 252,848
<b>Physics</b>	1 11,250		2 119,870	1 275,628	1 285,366	1 299,950		4 823,605			1 15,430	1 6,250	12 1,837,349
<b>Other</b>	1 10,000			1 9,109		2 103,852		2 379,911				1 18,000	7 520,872
<b>SUBTOTALS</b>	13 \$5,289,207	25 \$7,420,186	33 \$7,604,308	21 \$9,102,219	24 \$7,235,207	36 \$6,005,267	31 \$38,403,244	26 \$4,072,683	23 \$4,225,467	16 \$2,653,807	25 \$12,831,574	30 \$7,982,936	303 \$112,826,105
<b>Add: Earmarks</b>													0 0
<b>TOTALS</b>	13 \$5,289,207	25 \$7,420,186	33 \$7,604,308	21 \$9,102,219	24 \$7,235,207	36 \$6,005,267	31 \$38,403,244	26 \$4,072,683	23 \$4,225,467	16 \$2,653,807	25 \$12,831,574	30 \$7,982,936	303 \$112,826,105

**Worcester Polytechnic Institute**  
**Report of Awards Received**  
**March 2009**

Department	Principal Investigator	Co-PI	Project Title	Sponsor	Prime Sponsor (if Sub)	Amount Awarded	Cost Sharing	Voluntary Uncommitted CS	Award Type	Program Type	Proposal #
Biomedical Engineering	Gaudette, G.	Rolle, M., Pins, G., Pietroforte, R.	Microthread-Based Delivery of Human Mesenchymal Stem Cells to Infarcted Hearts	NIH		219,526	0	17,987	New	Research	<a href="#">9061</a>
Subtotal: 1						219,526	0	17,987			
Chemical Engineering	Camesano, T.		Anti-Adhesion Mechanisms of Cranberry Constituents on E. coli	NIH		218,032	0	16,550	New	Research	<a href="#">8244</a>
Subtotal: 1						218,032	0	16,550			
Chemistry and Biochemistry	Arguello, J.		Structure and Function of Copper Transport ATPases	NSF		180,000	8,071		Con't.	Research	<a href="#">8015</a>
	Kaminski, G.		Protein Simulation with a Fast Polarizable Force Field	NIH		99,528	0		Supp.	Research	<a href="#">8248</a>
	Kaminski, G.		Protein Simulation with a Fast Polarizable Force Field	NIH		256,025	0		Con't.	Research	<a href="#">8248</a>
Subtotal: 3					535,553	8,071	0				
Computer Science	Lindeman, R.		Student Panel at IEEE Virtual Reality 2009	NSF		6,149	0		New	Conference/Travel	<a href="#">9155</a>
	Lindeman, R.	Finkel, D.	Climate Connections Challenge: Serious Game Proposal	FIRST	Dept. of Homeland Security	22,500	0		New	Education/Training	<a href="#">8173</a>
Subtotal: 2						28,649	0	0			
Diversity & Women's Programs	Bradford, N.		ExxonMobil Bernard Harris Summer Science Camp 2009	The Bernard Harris Foundation		79,911	16,426		New	Education/Training	<a href="#">9110</a>
Subtotal: 1						79,911	16,426	0			
Interdisciplinary & Global Studies	Carrera, F.		Digital Earth Watch: A Program to Promote Environmental Monitoring by Students and Citizens through Remote Sensing and Digital Photography	University of N. H.	NASA	137,749	0		New	Research	<a href="#">9033</a>
Subtotal: 1						137,749	0	0			
Mathematical Sciences	Tang, D.	Petrucelli, J., Walker, H.	Multi-Physics Modeling and Meshless Method for Atherosclerotic Plaque Progression	NSF		364,765	0		Con't.	Research	<a href="#">5179</a>
	Yakovlev, V.		Efficient Electromagnetic-Thermal Models of High Temperature Microwave Processing of Clay-Based Materials	Spheric Technologies, Inc.		46,985	0		New	Research	<a href="#">9172</a>
Subtotal: 2						411,750	0	0			
Mechanical Engineering	Apelian, D.		Modeling Task for WPI's Metal Processing Institute	Advanced Technology Institute	Army Research Office	41,600	0		Con't.	Research	<a href="#">8115</a>

**Worcester Polytechnic Institute**  
**Report of Awards Received**  
**March 2009**

	Henry, M.	Backman, D.	G E Global Research	General Electric Global Research		15,000	0		Con't.	Other	<a href="#">8111</a>
	Pryputniewicz, R.		Metrology System for Defense Freedom Optics	MetroLaser, Inc.	Missile Defense Agency	220,000	0		Con't.	Research	<a href="#">8238</a>
Subtotal: 3						276,600	0	0			
Provost's Office	McGimpsey, G.		Graduate Research Fellowships	NSF		40,500	9,102		Con't.	Education/ Training	<a href="#">7193</a>
Subtotal: 1						40,500	9,102	0			
 <b>Total: 15</b>						<b>1,948,270</b>	<b>33,599</b>	<b>34,537</b>			