#### 2000 Mathematical/Interdisciplinary Contest in Modeling Press Release Revised April 10, 2000

COMAP is pleased to announce the results of the 16th annual Mathematical Contest in Modeling (MCM) and the 2nd annual Interdisciplinary Contest in Modeling (ICM). This year 496 teams representing 232 institutions from nine countries participated in the contest. The following institutions had teams designated as this year's Outstanding Winners: California Polytechnic State University, Duke University, Harvey Mudd College, Governor's School, Lewis & Clark College, National University of Defense Technology, North Carolina School of Science and Mathematics(2), U.S. Military Academy, University of Colorado, Wake Forest, and Washington University.

The 2000 MCM/ICM began at 12:01 a.m. on Friday, February 4 and officially ended at 5:00 p.m. on Monday, February 7, 2000. During that time, teams of up to three undergraduates were to research and submit an optimal solution for one of three openended modeling problems.

This year's Problem A was dedicated to the memory of Dr. Robert Machol, former chief scientist of the Federal Aviation Agency. Dr. Machol posed the problem when the FAA was considering adding software to the air traffic control system that would alert controllers to potential problems, and thus improve safety and reduce workload. In addition to solving the problem, participants were asked to write a summary that could be presented to the FAA Administrator, Ms. Jane Garvey.

Problem B this year sought to model the assignment of radio channels to a symmetric network of transmitter locations so as to avoid interference. Many groups came to the conclusion that the pure mathematical solution needed some practical applications, and included those as well.

This year's ICM problem offered information regarding the need to keep the elephant population in a national park in South Africa down to 11,000 while

#### **Contest Directors**

Chris Arney, U.S. Military Academy, NY Frank R. Giordano, COMAP, Inc., MA John H. Grubbs, Tulane University, LA

#### Associate Directors

Bob Borrelli, Harvey Mudd College, CA Bill Fox, Francis Marion University, SC Bernard Fusaro, Florida State University, FL Michael Kelley, U.S. Military Academy, NY Gary W. Krahn, U.S. Military Academy, NY Michael Moody, Harvey Mudd College, CA

#### Founding Director

Bernard Fusaro, Florida State University, FL



Major funding provided by The National Security Agency and The National Science Foundation



avoiding the option of having to destroy any of the animals. A contraceptive dart has been developed that prevents conception for two years. Participants were tasked with investigating how to use the dart successfully. Six specific questions were to be addressed and data was offered about emigration patterns, gender ratios, elephant conception patterns, and new calf survival rates.

Major funding for the MCM/ICM is provided by a grant from the National Security Agency, National Science Foundation, and COMAP. Additional support is provided by The Institute for Operations Research and Industrial and Applied Mathematics (INFORMS), the Society for Industrial and Applied Mathematics (SIAM), and the Mathematical Association of America (MAA). COMAP's Mathematical Contest in Modeling is unique among modeling competitions in that it is the only international contest in which students work in teams to find a solution. Centering its educational philosophy on mathematical modeling, COMAP uses mathematical tools to explore real-world problems. It serves the educational community as well as the world of work by preparing students to become better informed—and prepared—citizens.

#### 2000 MCM/ICM Statistics

785 teams registered and 496 participated (63%)
283 U.S. Teams (57%) from 163 institutions
213 Foreign Teams (43%) from Australia, Canada, Finland, Hong Kong, Ireland, Lithuania, P.R. China, and South Africa
156 Problem A entries (31%)
271 Problem B entries (55%)
69 ICM entries (14%)
12 Outstanding Winners (3%) - 4 A, 5 B, 3 ICM
77 Meritorious Winners (15%) - 21 A, 43 B, 12 ICM
135 Honorable Mentions (27%) - 45 A, 72 B, 18 ICM
272 Successful Participants (55%) - 84 A, 151 B, 37 ICM
477 four-year institutions (96%)
8 two-year institutions (2%)

#### Executive Director Solomon A. Garfunkel, COMAP, Inc., MA Advisory Board Courtney Coleman, Harvey Mudd College, CA Marvin S. Keener, Oklahoma State University, OK Veena Mendiratta, Bell Labs, Lucent Technology, IL Keith Miller, National Security Agency, MD John S. Robertson, Georgia College & State Univ., GA Leon H. Seitelman, Pratt & Whitney, CT Maynard Thompson, Indiana University, IN Maria Vanisko, Carroll College, MT Contest Coordinator Clarice Callahan, COMAP, Inc., MA

COYAP

Administered by The Consortium for Mathematics and ItsApplications

To obtain additional MCM/ICM information and a complete listing of team designations visit <u>www.comap.com</u> Or you may call Clarice Callahan, MCM/ICM Contest Coordinator at (781) 862-7878 ext. 37 or email mcm@comap.com.

 Institution	Control #	City	State	Advisor	Problem	Designation
Duke University	358	<u>Durham</u>	NC	David P. Kraines	A	Outstanding Winner
Duke Oniversity	550	2 di mani	110			MAA Prize Recipient
Governor's School	161	Richmond	VA	Crista Hamilton	А	Outstanding Winner
U.S. Military Academy	499	West Point	NY	Cpt. David Bailey	А	Outstanding Winner SIAM Prize Recipient
University of Colorado	84	Boulder	СО	Anne M. Dougherty	А	Outstanding Winner INFORMS Prize
Chongqing University	97	Chongqing		Chen Yihua	А	Meritorious
Drake University	618	Des Moines	IA	Alexander F. Kleiner	А	Meritorious
East China Univ. of Science &	272	Shanghai		Yuanhong Lu	А	Meritorious
Harvey Mudd College	188	Claremont	CA	Zachary Dodds	А	Meritorious
Lafayette College	527	Easton	PA	Thomas Hill	А	Meritorious
Peking University	311	Beijing		Minghua Deng	А	Meritorious
Rose-Hulman Inst. of Tech.	248	Terre Haute	IN	Dr. Frank Young	А	Meritorious
Science School of Xi'an Jiaotong	258	Xi'an, Shaanxi		He Xiaoliang	А	Meritorious
Simpson College	288	Indianola	IA	M. E. Waggoner	А	Meritorious
Stetson University	254	Deland	FL	Dr. Lisa O. Coulter	А	Meritorious
Trinity University	316	San Antonio	ΤХ	Tarynn Witten	А	Meritorious
Univ. of Colorado at Colorado	614	Colorado Springs	СО	Jon Epperson	А	Meritorious
University College Cork	414	Cork		Dr. Michael Quinlan	А	Meritorious
University of Alaska Fairbanks	643	Fairbanks	AK	Chris Hartman	А	Meritorious
University of Cincinnati	125	Cincinnati	OH	Charles Groetsch	А	Meritorious
University of Saskatchewan	592	Saskatoon, SK		Dr. Raj Srinivasan	А	Meritorious
University of Science &	600	Hefei, Anhui		Sun Liang	А	Meritorious
Worcester Polytechnic Inst.	151	Worcester	MA	Bogdan Vernescu	А	Meritorious
Youngstown State University	103	Youngstown	OH	Dr. Steve Hanzely	А	Meritorious
Youngstown State University	100	Youngstown	OH	Dr. Thomas Smotter	А	Meritorious
Zhejiang University	147	Hangzhou,		Qifan Yang	А	Meritorious
Zhejiang University	150	Hangzhou,		Yong He	А	Meritorious
Beijing Institute of Technology	400	Beijing		Xiao Di Cui	А	Honorable Mention
Beijing Union University	439	Beijing		Zeng Qingli	А	Honorable Mention
Bellarmine College	220	Louisville	KY	Bill Hardin	А	Honorable Mention
Beloit College	587	Beloit	WI	Paul Campbell	А	Honorable Mention
East China Univ. of Science &	273	Shanghai		Nianci Shao	А	Honorable Mention
Georgia Southern University	566	Statesboro	GA	Mr. Gary Huband	А	Honorable Mention
Gettysburg College	15	Gettysburg	PA	John Jaroma	А	Honorable Mention
Graceland College	689	Lamoni	IA	Ronald K. Smith	А	Honorable Mention
Harbin Inst. of Technology	56	Harbin,		Shang Shouting	А	Honorable Mention
Harbin Institute of Technology	58	Harbin,		Zhang Chiping	А	Honorable Mention
Harvey Mudd College	185	Claremont	CA	Michael Moody	А	Honorable Mention
Jacksonville University	321	Jacksonville	FL	Robert A. Hollister	А	Honorable Mention
James Madison University	41	Harrisonburg	VA	Caroline Smith	А	Honorable Mention
Lipscomb University	27	Nashville	TN	Dr. Gary Hall	А	Honorable Mention
Mesa State College	324	Grand Junction	СО	Edward Bonan-Hamad		Honorable Mention
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<u>Institution</u>	<u>Control #</u>			<u>Advisor</u>		Designation
Mesa State College	325	Grand Junction	СО	Edward Bonan-Hamad		Honorable Mention
Nankai University	670	Tianjin		Zengqiang Chen	А	Honorable Mention
Nazareth College	685	Rochester	NY	Kelly M. Fuller	А	Honorable Mention
Northern State University	159	Aberdeen	SD	Dr. A. S. Elkhader	А	Honorable Mention
Northwestern Polytechnical	461	Xi'an, Shaanxi		Wang Mingyu	А	Honorable Mention
Northwestern Polytechnical	307	Xi'an, Shaanxi		Xu Wei	А	Honorable Mention
Okanagan University College	118	Kelowna	BC	Dr. Heinz Bauschke	А	Honorable Mention
Salisbury State University	80	Salisbury	MD	Steven M. Hetzler	А	Honorable Mention
Shanghai Jiao Tong University	476	Shanghai		Lei Zhishu	А	Honorable Mention
South China Univ. of Technology	226	Guangzhou,		Lejun Xie	А	Honorable Mention
Southeast University	398	Nanjing		Jun Huang	А	Honorable Mention
St. Louis University	256	St. Louis	МО	David A. Jackson	А	Honorable Mention
State University of West Georgia	446	Carrollton	GA	Scott Gordon	А	Honorable Mention
Stetson University	255	Deland	FL	Dr. Lisa O. Coulter	А	Honorable Mention
The College of Wooster	305	Wooster	OH	Pamela Pierce	А	Honorable Mention
Tianjin University	327	Tianjin		Zeyi Liu	А	Honorable Mention
Tsinghua University	486	Beijing		Ye Jun	А	Honorable Mention
U.S. Military Academy	500	West Point	NY	Cpt. Diane Nelson	А	Honorable Mention
Univ. of California - Berkeley	263	Berkeley	CA	Rainer K. Sachs	А	Honorable Mention
Univ. of Central Oklahoma	635	Edmond	OK	Dr. Cooper	А	Honorable Mention
Univ. of Elec. Sci. & Tech.	280	Chengdu		Xu Quanzhi	А	Honorable Mention
Univ. of Elec. Sci. & Tech.	282	Chengdu		Zhong Erjie	А	Honorable Mention
University College Dublin	362	Dublin		Dr. Fergus Gaines	А	Honorable Mention
University College Galway	268	Galway		Martin Meere	А	Honorable Mention
University of New South Wales	315	Sydney, NSW		Dr. Bruce Henry	А	Honorable Mention
University of North Texas	153	Denton	ΤХ	John Quintanilla	А	Honorable Mention
University of Ottawa	451	Ottawa, Ontario		Luc Demers	А	Honorable Mention
Weber State University	405	Ogden	UT	Richard Miller	А	Honorable Mention
Wentworth Military Academy	22	Lexington	МО	Jacque Maxwell	А	Honorable Mention
Western Connecticut State Univ		Danbury	СТ	C Edward Sandifer	A	Honorable Mention
Western Washington University		Bellingham	WA		A	Honorable Mention
Bloomsburg University	18	Bloomsburg	PA	Kevin Ferland	A	Successful Participan
Brandon University	632	Brandon, Manitol		Doug Pickering	A	Successful Participan
-		Brevard	NC	Theresa A. Bright	A	Successful Participan
Brevard College	130	Lewisburg	PA	Sally Koutsoliotas	A	Successful Participan
Bucknell University	26	-		0		-
California State Univ – Bakersfie		Bakersfield Fullerton	CA	Joseph R. Fiedler Mario Martelli	A A	Successful Participan
California State University -	20		CA		A	Successful Participan
Capital University	167	Columbus	OH	Dr. Ignatios Vakalis	A	Successful Participan
Carroll College	629	Helena	MT	Jack Oberweiser	A	Successful Participan
Carroll College	630	Helena	MT	Mary Keeffe	A	Successful Participan
Carroll College	631	Helena	MT	Prof. Phil Rose	A	Successful Participan
Central Carolina Technical	59	Sumter	SC	Michael L. Salais	А	Successful Participan

<u>Institution</u>	Control #	City	State	e Advisor	Problem	Designation
Chatham College	6	Pittsburgh	РА	Larry Viehland	A	Successful Participant
Colby College	539	Waterville	ME	Jan Holly	А	Successful Participant
College of Sciences, Jiamusi	143	Jiamusi,		Gu Li Zhi	А	Successful Participant
Eastern Oregon State College	412	LaGrande	OR	David Allen	А	Successful Participant
Eastern Oregon State College	413	LaGrande	OR	John Thurber	А	Successful Participant
Georgetown University	297	Washington	DC	Andrew Vogt	А	Successful Participant
Georgia Southern University	568	Statesboro	GA	Dr. Goran Lesaja	А	Successful Participant
Gettysburg College	29	Gettysburg	PA	James P. Fink	А	Successful Participant
Goshen College	625	Goshen	IN	David Housman	А	Successful Participant
Graceland College	688	Lamoni	IA	Steve K. Murdock	А	Successful Participant
Grand View College	410	Des Moines	IA	Timothy L. Hardy	А	Successful Participant
Greenville College	526	Greenville	IL	Galen R. Peters	А	Successful Participant
Hastings College	457	Hastings	NE	David B. Cooke	А	Successful Participant
Hastings College	458	Hastings	NE	David B. Cooke	А	Successful Participant
Hefei University of Technology	285	Hefei, Anhui		Huang Youdu	А	Successful Participant
Hillsdale College	164	Hillsdale	MI	John P. Boardman	А	Successful Participant
Humboldt State Univ.	491	Arcata	CA	Roland Lamberson	А	Successful Participant
Ji Nan University	578	Guang Zhou,		Ye Shi Qi	А	Successful Participant
Johnson State College	30	Johnson	VT	Glenn Sproul	А	Successful Participant
Johnson State College	31	Johnson	VT	Glenn Sproul	А	Successful Participant
Kapi'olani Community	136	Honolulu	HI	Susan Moore	А	Successful Participant
Lawrence Technological Univ.	526	Southfield	MI	Howard Whitston	А	Successful Participant
Lipscomb University	28	Nashville	TN	Dr. Mark Miller	А	Successful Participant
Macalester College	584	St. Paul	MN	Daniel A. Schwalbe	А	Successful Participant
Macalester College	588	St. Paul	MN	Daniel Kaplan	А	Successful Participant
Marietta College	481	Marietta	OH	Tom LaFramboise	А	Successful Participant
Memorial Univ. of Newfoundland	ł 523	St. John's, NFLD		Dr. Andy Foster	А	Successful Participant
Missouri Southern State College	124	Joplin	МО	Dr. Patrick Cassens	А	Successful Participant
Mt. St. Mary's College	83	Emmitsburg	MD	Bill O'Toole	А	Successful Participant
New Mexico Institute of Mining &	& 334	Socorro	NM	William D. Stone	А	Successful Participant
New Mexico State University	478	Las Cruces	NM	Marcus S. Cohen	А	Successful Participant
Northwest Missouri State Univ.	303	Maryville	МО	Russell Euler	А	Successful Participant
Northwestern State University of	550	Natchitoches	LA	Richard DeVault	А	Successful Participant
Paivola College	431	Tarttila		Esa Lappi	А	Successful Participant
Regis University	42	Denver	СО	Linda Duchrow	А	Successful Participant
Rensselaer Polytechnic Institute	417	Troy	NY	Bruce Piper	А	Successful Participant
Rhode Island College	65	Providence	RI	David L. Abrahamson	А	Successful Participant
Ripon College	528	Ripon	WI	David Scott	А	Successful Participant
Rowan University	62	Glassboro	NJ	Paul J. Laumakis	А	Successful Participant
Sacred Heart University	81	Fairfield	СТ	Antonio A. Magliaro	А	Successful Participant
Science School of Xi'an Jiaotong	259	Xi'an, Shaanxi		He Xiaoliang	А	Successful Participant
Sichuan University	590	Chengdu, Sichuan		Shuchao Zou	А	Successful Participant

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<u>Institution</u>	<u>Control #</u>	<b>.</b>	<u>State</u>	Advisor		<b>Designation</b>
Sichuan University	385	Chengdu, Sichuan		Yang Zhihuo	А	Successful Participant
Simon's Rock College	427	Great Barrington	MA	Allen B. Altman	А	Successful Participant
Simpson College	287	Indianola	IA	M. E. Waggoner	А	Successful Participant
Simpson College	289	Indianola	IA	Randy Bower	А	Successful Participant
Smith College	140	Northampton	MA	Ruth Haas	А	Successful Participant
Sonoma State University	678	Rohnert Park	CA	Sunil K. Tiwari	А	Successful Participant
South China University of	198	Guangzhou,		Chunxiong He	А	Successful Participant
St. Bonaventure University	178	St. Bonaventure	NY	Albert G. White	А	Successful Participant
Stephen F. Austin State Universit	y 230	Nacogdoches	ТΧ	Colin Starr	А	Successful Participant
Univ. of Massachusetts—Lowell	111	Lowell	MA	Lou Rossi	А	Successful Participant
Univ. of North Carolina	416	Chapel Hill	NC	Jon W. Tolle	А	Successful Participant
Univ. of Northern Iowa	479	Cedar Falls	IA	Gregory M. Dotseth	А	Successful Participant
Univ. of Western Ontario	371	London, Ontario		Peter H. Poole	А	Successful Participant
University College Cork	265	Cork		Dr. James J. Grannell	А	Successful Participant
University College, Cork	266	Cork		Dr. Patrick Fitzpatrick	А	Successful Participant
University of Bridgeport	681	Bridgeport	СТ	Dr. Natalia Romalis	А	Successful Participant
University of N.C. at Wilmington	557	Wilmington	NC	Russell L. Herman	А	Successful Participant
University of Nevada	172	Reno	NV	Mark M. Meerschaert	А	Successful Participant
University of New South Wales	314	Sydney, NSW		Dr. Bruce Henry	А	Successful Participant
University of Ottawa	452	Ottawa, Ontario		Luc Demers	А	Successful Participant
University of South Carolina -	276	Aiken	SC	Laurene Fausett	А	Successful Participant
University of Stellenbosch	208	Matieland, Cape		Dr. Jan H van Vuuren	А	Successful Participant
University of Texas at Dallas	45	Richardson	ΤХ	Tiberiu Constantinescu	ı A	Successful Participant
Vilnius University	575	Vilnius, 2006		Tadas Meskauskas	А	Successful Participant
Wartburg College	608	Waverly	IA	Mariah Birgen	А	Successful Participant
Westchester Comm. College	683	Valhalla	NY	Sheela Whelan	А	Successful Participant
Western Connecticut State Univ.	93	Danbury	СТ	C Edward Sandifer	А	Successful Participant
Xavier University	128	Cincinnati	OH	Richard J. Pulskamp	А	Successful Participant
Xavier University	129	Cincinnati	OH	Richard J. Pulskamp	А	Successful Participant
Xi'an University of Technology	559	Xi'an, China		Tang Ping	А	Successful Participant
York University	497	Toronto, Ontario		Juris Steprans	А	Successful Participant
California Polytechnic State Univ	24	San Luis Obispo	CA	Thomas O'Neil	В	Outstanding Winner MAA Prize Recipient
Lewis & Clark College	620	Portland	OR	Robert W. Owens	В	Outstanding Winner
National U. of Defence	104	Chang Sha, HuNan		Wu MengDa	В	Outstanding Winner
Wake Forest University	68	Winston-Salem	NC	Edward Allen	В	Outstanding Winner SIAM Prize Recipient
Washington University	441	St. Louis	МО	Hiro Mukai	В	Outstanding Winner INFORMS Prize
Anhui University	206	Hefei, Anhui		Chen Junsheng	В	Meritorious
Asbury College	654	Wilmore	KY	Kenneth P. Rietz	В	Meritorious
Beijing University of Post &	341	Beijing, Beijing		He Zuguo	В	Meritorious
Beijing University of Post &	340	Beijing, Beijing		Sun Hongxiang	В	Meritorious
Calvin College	560	Grand Rapids	MI	Dorothea Pronk	В	Meritorious

Institution	<u>Control #</u>			Advisor	Problem	Designation
China University of Mining &	109	Xuzhou, Jiangsu	Statt	Wu Zongxiang	B	Meritorious
East China Univ. of Science &	275	Shanghai		Jinsong Shi	В	Meritorious
East China Univ. of Science &	273	Shanghai		Xiwen Lu	В	Meritorious
Fudan University	628	Shanghai		Zhijie Cai	В	Meritorious
Gettysburg College	14	Gettysburg	PA	James P. Fink	В	Meritorious
Grinnell College	300	Grinnell	IA	Marc Chamberland	В	Meritorious
Harbin Institute of Technology	57	Harbin,		Wang Xuefeng	В	Meritorious
Harvey Mudd College	186	Claremont	CA	Michael Moody	В	Meritorious
Institution of Information Science		Shenyang, Liaoning		Wen-dong Xiao	В	Meritorious
Luther College	595	Decorah	, IA	Reginald D. Laursen	В	Meritorious
MIT	435	Cambridge	MA	Michael Brenner	В	Meritorious
Mt. Mercy College	445	Cedar Rapids	IA	Kent R. Knopp	В	Meritorious
National U. of Defence	107	Chang Sha, HuNan		Cheng LiZhi	В	Meritorious
Northwestern Polytechnical	462	Xi'an, Shaanxi		Liu Xiaodong	В	Meritorious
Northwestern Polytechnical	308	Xi'an, Shaanxi		Peng Guohua	В	Meritorious
Pacific Lutheran University	91	Tacoma	WA	Rachid Benkhalti	В	Meritorious
Paivola College	432	Tarttila		Esa Lappi	В	Meritorious
Peking University	310	Beijing		Lei Gongyan	В	Meritorious
Rose-Hulman Institute of	250	Terre Haute	IN	David Rader	В	Meritorious
Shanghai Foreign Languages	613	Shanghai		Wan Bai He	В	Meritorious
Shanghai Jiao Tong University	475	Shanghai		Zhou Gang	В	Meritorious
South China Univ. of Technology	190	Guangzhou,		Fu Hongzhuo	В	Meritorious
Southeast University	395	Nanjing		Jun Huang	В	Meritorious
Southeast University	396	Nanjing		Jun Huang	В	Meritorious
The First Middle School of Jiading	g 495	Shanghai, China		Yunping Fang	В	Meritorious
Trinity University	317	San Antonio	ΤХ	Allen Holder	В	Meritorious
Tsinghua University	488	Beijing		Hu Zhi-Ming	В	Meritorious
U.S. Military Academy	501	West Point	NY	Dr. Greg Parnell	В	Meritorious
Univ. of Michigan—Dearborn	641	Dearborn	MI	David James	В	Meritorious
University of Alaska Fairbanks	644	Fairbanks	AK	Chris Hartman	В	Meritorious
University of New South Wales	113	Sydney, Australia		Dr. James Franklin	В	Meritorious
University of Richmond	189	Richmond	VA	Kathy W. Hoke	В	Meritorious
University of Toronto	418	Toronto, Ontario		Nicholas A. Derzko	В	Meritorious
University of Toronto	419	Toronto, Ontario		Nicholas A. Derzko	В	Meritorious
Wuhan Univ. of Hydralic &	70	Wuban, Hubei		Peng Zuzeng	В	Meritorious
Yale University	447	New Haven	СТ	Steven Orszag	В	Meritorious
Zhejiang University	148	Hangzhou,		Qifan Yang	В	Meritorious
Zhejiang University	149	Hangzhou,		Yong He	В	Meritorious
Angelo State University	368	San Angelo	ΤХ	John C. (Trey) Smith	В	Honorable Mention
Anhui University	330	Hefei, Anhui		Wang Dapeng	В	Honorable Mention
Anhui University	203	Hefei, Anhui		Wang Haixian	В	Honorable Mention
Beijing Union University	438	Beijing		Xing Chunfeng	В	Honorable Mention

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<u>Institution</u>	<u>Control #</u>	•	State	<u>a Advisor</u>		<b>Designation</b>
Beijing Univ. of Chemical	64	Beijing		Liu Damin	В	Honorable Mention
Beijing Univ. of Chemical	63	Beijing		Zhao Baoyuan	В	Honorable Mention
California Polytechnic State Univ	. 23	San Luis Obispo	CA	Thomas O'Neil	В	Honorable Mention
Central-South University of	490	Changsha City,		Zhang Hong Yan	В	Honorable Mention
China University of Mining &	108	Xuzhou, Jiangsu		Xue Xiuqian	В	Honorable Mention
China University of Mining &	110	Xuzhou, Jiangsu		Zhu Kaiyong	В	Honorable Mention
Chongqing University	96	Chongqing		Gong Qu	В	Honorable Mention
Chongqing University	98	Chongqing		Zhao Pingyong	В	Honorable Mention
Clarion University	251	Clarion	PA	John W. Heard	В	Honorable Mention
Colby College	538	Waterville	ME	Jan Holly	В	Honorable Mention
Colgate University	295	Hamilton	NY	Prof. Thomas W. Tucke	r B	Honorable Mention
Colorado College	379	Colorado Springs	СО	Jane McDougall	В	Honorable Mention
Colorado College	377	Colorado Springs	СО	Jennifer Courter	В	Honorable Mention
Eastern Michigan University	32	Ypsilanti	MI	Christopher E. Hee	В	Honorable Mention
Gettysburg College	16	Gettysburg	PA	Sharon Stephenson	В	Honorable Mention
Governor's School	160	Richmond	VA	Crista Hamilton	В	Honorable Mention
Governor's School	162	Richmond	VA	John Barnes	В	Honorable Mention
Grinnell College	299	Grinnell	IA	Marc Chamberland	В	Honorable Mention
Harbin Engineering Univ.	570	Harbin,		Luo Yuesheng	В	Honorable Mention
Harbin Engineering Univ.	573	Harbin,		Zhang Xiaowei	В	Honorable Mention
Harvey Mudd College	187	Claremont	CA	Zachary Dodds	В	Honorable Mention
Hillsdale College	165	Hillsdale	MI	John P. Boardman	В	Honorable Mention
Hiram College	672	Hiram	OH	Angela Spalsbury	В	Honorable Mention
Hong Kong Baptist University	424	Kowloon Tong,		Chong Sze Tong	В	Honorable Mention
Institution of Information Science	e 337	Shenyang, Liaoning	л Э	Jian-jiang Cui	В	Honorable Mention
Institution of Information Science	e 338	Shenyang, Liaoning	5 0	Pei-feng Hao	В	Honorable Mention
Iowa State University	200	Ames	IA	Stephen J. Willson	В	Honorable Mention
Ithaca College	116	Ithaca	NY	John C. Maceli	В	Honorable Mention
Lawrence Technological Univ.	682	Southfield	MI	Scott Schneider	В	Honorable Mention
Luther College	596	Decorah	IA	Reginald D. Laursen	В	Honorable Mention
Memorial Univ. of Newfoundlan	d 522	St. John's, NFLD		Dr. Andy Foster	В	Honorable Mention
Messiah College	597	Grantham	PA	James Makowski	В	Honorable Mention
Michigan State University	429	E. Lansing	MI	Charles R. MacCluer	В	Honorable Mention
Nanjing University	509	Nanjing, Jiang Su		Yao Tian-Xing	В	Honorable Mention
Nanjing University	508	Nanjing, Jiang Su		Yao Tianxing	В	Honorable Mention
Nankai University	669	Tianjin		Jishou Ruan	В	Honorable Mention
Nankai University	671	Tianjin		Qiushuang Chen	В	Honorable Mention
National U. of Defence	106	Chang Sha, HuNar	ı	Cheng LiZhi	В	Honorable Mention
Northwest University	463	Xi'an, Shaanxi		Ruichan He	В	Honorable Mention
Ohio University	545	Athens	OH	David N. Keck	В	Honorable Mention
Peking University	309	Beijing		Lei Gongyan	В	Honorable Mention
Saint Mary's College	34	Notre Dame	IN	Peter D. Smith	В	Honorable Mention

Institution	Control #			<u>Advisor</u>		Designation
Salisbury State University	<u>control </u> <i>«</i> 79	Salisbury	MD	Michael Bardzell	B	Honorable Mention
Shanghai Jiao Tong University	474	Shanghai	MID	Huang Jianguo	B	Honorable Mention
The First Middle School of Jiading		Shanghai, China		Gan Chen	B	Honorable Mention
Tsinghua University	487	Beijing		Hu Zhi-Ming	B	Honorable Mention
U.S. Military Academy	407	West Point	NY	Prof. James S. Rolf	B	Honorable Mention
Univ. of Colorado at Colorado	438 615	Colorado Springs	CO	Jon Epperson	B	Honorable Mention
Univ. of Elec. Sci. & Tech.	279	Chengdu	00	Xu Quanzhi	B	Honorable Mention
University College, Cork	213	Cork		Prof. Martin Stynes	B	Honorable Mention
University College Dublin	207 364	Belfield, Dublin		Dr. Peter Duffy	B	Honorable Mention
University of N.C. at Wilmington		Wilmington	NC	Russell L. Herman	B	Honorable Mention
University of New South Wales	46	Sydney, Australia	110	Dr. James Franklin	B	Honorable Mention
University of Puget Sound	40 182	Tacoma	W/A	Robert A. Beezer	B	Honorable Mention
University of Science &		Hefei, Anhui	WA	Hong Quan	B	Honorable Mention
	602	Hefei, Anhui		Wei Liu	B	Honorable Mention
University of Science &	603 045		UT	Don H. Tucker		Honorable Mention
University of Utah	645	Salt Lake City	01	Dr. Michael P. Tuite	B B	Honorable Mention
University College Galway	224	Galway	NC	Jeff Graham		Honorable Mention
Western Carolina University	36	Cullowhee	NC		B	Honorable Mention
Worcester Polytechnic Institute	180	Worcester	MA	Richard Jordan	B	
Wuhan Univ of Hydraulic &	71	Wuhan, Hubei		Cheng Guixing	В	Honorable Mention
Wuhan Univ of Hydraulic &	69	Wuhan, Hubei		Huang Chongchao	В	Honorable Mention
Wuhan Univ of Hydraulic &	72	Wuhan, Hubei Vilar		Li Yuhong	B	Honorable Mention
Xidian University	214	Xi'an		Liu Hong-Wei	B	Honorable Mention
Xidian University	88	Xi'an		Zhang Zhuo-Kui	В	Honorable Mention
York University	496	Toronto, Ontario		Neal Madras	В	Honorable Mention
Zhong Shan University	354	Guangzhou, Guang		Chen Ze Peng	В	Honorable Mention
ZhongShan University	674	Guangzhou,		Li Chao Rui	В	Honorable Mention
Abilene Christian University	389	Abilene	TX	David Hendricks	В	Successful Participant
Agnes Scott College	7	Decatur	GA	Robert A. Leslie	В	Successful Participant
Austin Community College/River		Austin	ТΧ	Allison Sutton	В	Successful Participant
Beijing Institute of Technology	399	Beijing		Xiao Di Cui	В	Successful Participant
Beijing Union University	437	Beijing		Ren KaiLong	В	Successful Participant
Beijing University of Post &	339	Beijing, Beijing		Sun Hongxiang	В	Successful Participant
Benedictine College	468	Atchison	KS	Jo Ann Fellin, OSB	В	Successful Participant
Bowdoin College	158	Brunswick	ME	Adam B. Levy	В	Successful Participant
Brandon University	633	Brandon, Manitoba	l	Doug Pickering	В	Successful Participant
California Lutheran University	243	Thousand Oaks	CA	Cindy Wyels	В	Successful Participant
California State Univ – Bakersfiel	ld 369	Bakersfield	CA	Joseph R. Fiedler	В	Successful Participant
California State Univ. —	54	Northridge	CA	Gholam-Ali Zakeri	В	Successful Participant
Cardinal Stritch University	492	Milwaukee	WI	Sr. Barbara Reynolds	В	Successful Participant
Central South Univ. of Technolog	y 535	Changsha, Hunan		Zheng Zhoushun	В	Successful Participant
Central-South University of	489	Changsha City,		Zhang Hong Yan	В	Successful Participant
Charleston Southern University	357	Charleston	SC	Dr. Stan Perrine	В	Successful Participant

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Institution	<u>Control #</u>			Advisor		<b>Designation</b>
Charleston Southern University	382	Charleston	SC	Dr. Stan Perrine	В	Successful Participant
Chatham College	4	Pittsburgh	PA	Dr. Eric Rawdon	В	Successful Participant
Chongqing University	99	Chongqing		Li Chuandong	В	Successful Participant
Clarion University	253	Clarion	PA	Jon Beal	В	Successful Participant
Colgate University	296	Hamilton	NY	Prof. Thomas W. Tucke		Successful Participant
College of Sciences, Jiamusi	141	Jiamusi,		Bai Feng Shan	В	Successful Participant
College of Sciences, Jiamusi	142	Jiamusi,		Bai Feng Shan	В	Successful Participant
College of Sciences, Jiamusi	144	Jiamusi,		Gu Li Zhi	В	Successful Participant
Department of System Science	105	Chang Sha, HuNan		Duan XiaoLong	В	Successful Participant
Drake University	619	Des Moines	IA	Alexander F. Kleiner	В	Successful Participant
Florida A&M University	638	Tallahassee	FL	Bruno Guerrieri	В	Successful Participant
Florida Inst. of Technology	650	Melbourne	FL	Gary W. Howell	В	Successful Participant
Fudan University	329	Shanghai		Qinfeng Xu	В	Successful Participant
Fudan University	554	Shanghai		XueQing Gong	В	Successful Participant
Fudan University	555	Shanghai		XueQing Gong	В	Successful Participant
Georgetown University	298	Washington	DC	Andrew Vogt	В	Successful Participant
Georgia Southern University	567	Statesboro	GA	Dr. Eric Funasaki	В	Successful Participant
Goshen College	624	Goshen	IN	David Housman	В	Successful Participant
Goucher College	227	Baltimore	MD	Robert E. Lewand	В	Successful Participant
Graceland College	687	Lamoni	IA	Steve K. Murdock	В	Successful Participant
Greenville College	525	Greenville	IL	Galen R. Peters	В	Successful Participant
Grinnell College	301	Grinnell	IA	Mark Montgomery	В	Successful Participant
Grinnell College	302	Grinnell	IA	Mark Montgomery	В	Successful Participant
Guangdong Commercial College	121	Guangzhou,		Chen Guanghui	В	Successful Participant
Harbin Engineering Univ.	571	Harbin,		Shen Jihong	В	Successful Participant
Harbin Inst. of Technology	55	Harbin,		Shang Shouting	В	Successful Participant
Haverford College	448	Haverford	PA	Robert Manning	В	Successful Participant
Hefei University of Technology	286	Hefei, Anhui		Bao Jie	В	Successful Participant
Hefei University of Technology	283	Hefei, Anhui		Du Xueqiao	В	Successful Participant
Hefei University of Technology	284	Hefei, Anhui		Zhou Yongwu	В	Successful Participant
Hiram College	673	Hiram	OH	Angela Spalsbury	В	Successful Participant
Hong Kong Baptist University	425	Kowloon Tong,		Dr. Wai Chee Shiu	В	Successful Participant
Huazhong University	518	Wuhan, Hubei		Wang Yizhi	В	Successful Participant
Huazhong University	519	Wuhan, Hubei		Wang Yizhi	В	Successful Participant
Huntingdon College	8	Montgomery	AL	Bob Robertson	В	Successful Participant
Indiana University	552	Bloomington	IN	John Brothers	В	Successful Participant
Indiana University	553	Bloomington	IN	John Brothers	В	Successful Participant
Institute of Operations Research	391	Qufu,		Zhenjun Shi	В	Successful Participant
Ithaca College	114	Ithaca	NY	James E. Conklin	В	Successful Participant
Jacksonville University	320	Jacksonville	FL	Robert A. Hollister	В	Successful Participant
James Madison University	40	Harrisonburg	VA	James S. Sochacki	В	Successful Participant
JiLin University	472	Changchun, JiLin		Huang Qingdao	В	Successful Participant
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Institution	Control #					Designation
		<u>City</u> Changchun, JiLin	State	e <u>Advisor</u> Lu Xian Rui	<u>Problem</u> B	Designation Successful Participant
JiLin University	469	8		Suohai Fan	B	-
Jinan University	579	Guang-Zhou	MT			Successful Participant
Lawrence Technological Univ.	680	Southfield	MI	Ruth G. Favro	В	Successful Participant
Lewis & Clark College	621	Portland	OR	Robert W. Owens	В	Successful Participant
Macalester College	589	St. Paul	MN	Daniel Kaplan	В	Successful Participant
Mesa State College	322	Grand Junction	СО	Bill Tiernan	В	Successful Participant
Mesa State College	323	Grand Junction	СО	Bill Tiernan	В	Successful Participant
Messiah College	515	Grantham	PA	Douglas C. Phillippy	В	Successful Participant
Miami University	173	Oxford	OH	Douglas E. Ward	В	Successful Participant
Nanjing Normal University	502	Nanjing, Jiangsu		Fu Shitai	В	Successful Participant
Nanjing Normal University	503	Nanjing, Jiangsu		Fu Shitai	В	Successful Participant
Nankai University	668	Tianjin		XingWei Zhou	В	Successful Participant
Northern Illinois University	656	Dekalb	IL	Hamid Bellout	В	Successful Participant
Northwest Textile Institute	175	Xi'an, Shaanxi		He Xingshi	В	Successful Participant
Pacific Lutheran University	90	Tacoma	WA	Rachid Benkhalti	В	Successful Participant
Peking University	312	Beijing		Deng Minghua	В	Successful Participant
Randolph-Macon College	74	Ashland	VA	Eve Torrence	В	Successful Participant
Regis University	43	Denver	СО	Linda Duchrow	В	Successful Participant
Rensselaer Polytechnic Institute	402	Troy	NY	Donald A. Drew	В	Successful Participant
Ripon College	529	Ripon	WI	David Scott	В	Successful Participant
Rose-Hulman Inst. of Tech.	247	Terre Haute	IN	Dr. Frank Young	В	Successful Participant
Rose-Hulman Institute of	249	Terre Haute	IN	David Rader	В	Successful Participant
Rowan University	401	Glassboro	NJ	Hieu Nguyen	В	Successful Participant
Saint Mary's College	35	Notre Dame	IN	Peter D. Smith	В	Successful Participant
Shandong University	692	Jinan, Shandong		Wang Dongsheng	В	Successful Participant
Shanghai Foreign Languages	612	Shanghai		Pan Li Oun	В	Successful Participant
Shanghai Jiao Tong University	473	Shanghai		Song Baorui	В	Successful Participant
Shanghai Normal University	350	Shanghai		Detong Zhu	В	Successful Participant
Shanghai Normal University	351	Shanghai		Detong Zhu	В	Successful Participant
Shanghai Normal University	352	Shanghai		Shenghuan Guo	В	Successful Participant
Sichuan University	569	Chengdu, Sichuan		Zhou Jie	В	Successful Participant
Simon's Rock College	428	Great Barrington	MA	Allen B. Altman	В	Successful Participant
Simon's Rock College	426	Great Barrington	MA	Michael Bergman	В	Successful Participant
Simpson College	290	Indianola	IA	Randy Bower	В	Successful Participant
Smith College	139	Northampton	MA	Ruth Haas	В	Successful Participant
South China Univ. of Technology		Guang Zhou,		Hao Zhifeng	В	Successful Participant
Southeast University	397	Nanjing		Jun Huang Sun	B	Successful Participant
Southern Connecticut State	422	New Haven	СТ	Ross B. Gingrich	В	Successful Participant
Southern Connecticut State	422	New Haven	СТ	Theresa Bennett	B	Successful Participant
Southern Oregon State College	138	Ashland	OR	Kemble R. Yates	B	Successful Participant
Southwestern University	651	Georgetown	TX	Therese Shelton	B	Successful Participant
St. Bonaventure University	176	St. Bonaventure	NY	Maureen Cox	B	Successful Participant
St. Donaventure Oniversity	170		1 N 1		D	succession i articipalit

Institution	Control #			e Advisor	Droblom	Designation
St. Bonaventure University	<u>control </u> <i>"</i> 177	St. Bonaventure	<u>State</u> NY	Maureen Cox	B	Successful Participant
St. Norbert College	242	De Pere	WI	John A. Frohliger	B	Successful Participant
Tianjin University	326	Tianjin	** 1	Ximin Rong	B	Successful Participant
Trinity University	320	San Antonio	ΤХ	Jeffrey Oldham	B	Successful Participant
Trinity University	388	San Antonio	ТХ	Jeffrey Oldham	B	Successful Participant
Truman State University	134	Kirksville	MO	Steve Smith	B	Successful Participant
Truman State University	134	Kirksville	MO	Steve Smith	B	Successful Participant
C C	485	Beijing	WIO	Ye Jun	B	Successful Participant
Tsinghua University	485 542	USAF Academy	СО	Major Dawn Stewart	B	Successful Participant
U.S. Air Force Academy		USAF Academy	co	Major Dawn Stewart	B	Successful Participant
U.S. Air Force Academy	543	Ū	CA	Rainer K. Sachs	B	Successful Participant
Univ. of California - Berkeley	264	Berkeley				Successful Participant
Univ. of Central Oklahoma	634	Edmond	OK	Dr. D. Endres	B	
Univ. of Elec. Sci. & Tech.	281	Chengdu		Wang Jianguo	B	Successful Participant
Univ. of Elec. Sci. & Tech.	342	Chengdu		Xu Quanzhi	B	Successful Participant
Univ. of Massachusetts—Lowell	112	Lowell	MA	James "Kiwi"	B	Successful Participant
Univ. of Western Ontario	372	London, Ontario	****	Peter H. Poole	В	Successful Participant
Univ. of Wisconsin—Stevens Poi		Stevens Point	WI	Nathan Wetzel	В	Successful Participant
University College Dublin	366	Belfield, Dublin		Dr. E. A. Cox	В	Successful Participant
University College Dublin	363	Dublin, Leinster		Dr. Niamh O'Sullivan	В	Successful Participant
University of Dallas	278	Irving	ТΧ	Pete McGill	В	Successful Participant
University of Limerick	653	Limerick		Gordon S. Lessells	В	Successful Participant
University of Massachusetts	599	Amherst	MA	Robert B. Kusner	В	Successful Participant
University of North Florida	145	Jacksonville	FL	Peter A. Braza	В	Successful Participant
University of Puget Sound	181	Tacoma	WA	Robert A. Beezer	В	Successful Participant
University of Saskatchewan	593	Saskatoon, SK		Dr. James A. Brooke	В	Successful Participant
University of Saskatchewan	591	Saskatoon, SK		Dr. Tom Steele	В	Successful Participant
University of Science &	601	Hefei, Anhui		Jin Letian	В	Successful Participant
University of Southern Colorado	652	Pueblo	СО	James Louisell	В	Successful Participant
University of Southern	537	Toowoomba, QLD		Tony Roberts	В	Successful Participant
University of Stellenbosch	207	Matieland, Cape		Dr. Jan H van Vuuren	В	Successful Participant
University of Washington	373	Seattle		Peter Schmid	В	Successful Participant
University of Washington	375	Seattle	WA	Randall J. LeVeque	В	Successful Participant
University of Wisconsin-Plattevil	le 455	Platteville	WI	Sherrie Nicol	В	Successful Participant
Vilnius University	576	Vilnius, 2006		Algirdas Zabulionis	В	Successful Participant
Vilnius University	574	Vilnius, 2006		Antanas Mitasiunas	В	Successful Participant
Vilnius University	577	Vilnius, 2006		Ricardas Kudzma	В	Successful Participant
Virginia Western Comm. College	e 170	Roanoke	VA	Ruth Sherman	В	Successful Participant
Wells College	257	Aurora	NY	Dr. Carol C. Shilepsky	В	Successful Participant
Westchester Comm. College	684	Valhalla	NY	Sheela Whelan	В	Successful Participant
Western New England College	662	Springfield	MA	Lorna Hanes	В	Successful Participant
Wheaton College	168	Wheaton	IL	Paul Isihara	В	Successful Participant
Wheaton College	169	Wheaton	IL	Paul Isihara	В	Successful Participant

<b>Institution</b>	<u>Control #</u>	<u>City</u>	State	e Advisor	<b>Problem</b>	<b>Designation</b>
Wisconsin Lutheran College	44	Milwaukee	WI	Marvin C. Papenfuss	В	Successful Participant
Xi'an Jiaotong University	260	Xi'an,Shaanxi		Zhou Yicang	В	Successful Participant
Xi'an Jiaotong University	261	Xi'an,Shaanxi		Zhou Yicang	В	Successful Participant
Xi'an University of Technology	558	Xi'an, China		Du Zhanrong	В	Successful Participant
Xidian University	234	Xi'an, Shaanxi		Mao Yongcai	В	Successful Participant
Youngstown State University	102	Youngstown	OH	Dr. Bob Kramer	В	Successful Participant
Youngstown State University	101	Youngstown	OH	Dr. Thomas Smotter	В	Successful Participant
Zhong Shan University	353	Guangzhou, Guang		Yin Zhao Yang	В	Successful Participant
ZhongShan University	675	Guangzhou,		Li Cai Wei	В	Successful Participant