

American Physical Society
2007 APS Survey of International Programs
Final Report

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Introduction

The 2007 Survey of APS International Programs had several goals. It assessed the awareness of and the importance that U.S.-resident members place on APS International Programs. It assessed the level of experience among U.S.-resident members with colleagues in other countries as well as the extent to which U.S.-resident members have either worked or earned academic degrees abroad. This study was conducted by the Statistical Research Center (SRC) at the American Institute of Physics (AIP) under the guidance of Trish Lettieri, Judy Franz, and Amy Flatten. These results will help APS continue the development of their International Programs.

The survey was conducted entirely on-line. The survey was based on U.S.-resident APS members with Email addresses, and who were graduate student, junior, regular, and life members (excluding senior members). Approximately one out of five (N=6,014) were randomly selected to receive an Email invitation to participate in this survey.

The first mailing was sent on May 3, 2007. A second mailing to those who did not respond to the first mailing was sent on May 22, 2007. A little over 3% of the Email addresses were undeliverable. The final tally of respondents was 2727 out of 5807 possible contacts or 47%, which is comparable to recent APS surveys after two mailings.

The report is divided into several sections. The first section of tables summarizes the respondent demographics, the awareness of, how they learned about, and the importance of APS International Programs. These data were categorized into three career stages: current graduate students, recent workforce entrants, and experienced workforce. The second section provides more in depth analyzes of selected tables with a special emphasis on whether the respondents earned their bachelors degrees in the U.S. or abroad. The third section contains the survey instruments used to collect the data. The verbatim comments will be presented as a separate report due to the fact that they fill more than 150 pages.

If you have questions or comments about this report, please contact Trish Lettieri at APS.

Highlights

This was a successful survey with a good response rate and data that reflect a great deal of consistency and internal reliability.

The data from this survey paint a clear picture that includes both good news and opportunities for improvement.

There were low awareness levels for each of the four international programs identified on the questionnaire (see Tables 14, 17, 20 and 23).

The best-known program was the free distribution of on-line journals to physicists in developing countries. The least well-known program was the Beller & Marshak Lectureship.

Awareness of the programs tended to increase with the number of years that respondents may have been APS members. Graduate students knew less about the programs than did recent entrants into workforce who in turn knew less than members in the experienced workforce.

How members learned about the international programs was in line with expectations. APS News is the primary way that members find out about programs - except for students who are part of a generation that spends a great deal of time on the web. They are more likely to find out about programs through the APS website. The third most common source of information was a colleague.

Over 80% of graduate students and recent workforce entrants rated the programs as important. The experienced members of the workforce rated reduced APS membership dues and international travel grants as less important than did other respondents. But, three-quarters of them still thought these programs were important.

APS members who earned their bachelors degrees abroad were significantly more likely than those who earned their bachelors in the U.S. to rate each of the programs as very important or essential.

The demographic profiles of the respondents were consistent with expectations as well.

Age: Graduate students were largely younger than 30, recent entrants into the workforce were largely in the 30's, while the experience workforce were largely older than 40.

Citizenship: Respondents were asked whether they earned their bachelors degrees in the U.S. Their replies were used as a surrogate for citizenship. Half of APS graduate student members residing in the U.S. report that they earned by bachelors abroad. AIP data indicate that about half of all physics graduate students are foreign citizens.

Physics is an international field and it is no surprise that a significant percentage of the U.S.-resident members of APS report that they earned their highest degrees abroad (15% of recent entrants into the workforce and 12% of the experience workforce). Similarly, nearly 40% of the experienced workforce report that they have worked for at least 2 months outside of the U.S.

Collaborations between U.S. residents and physicists abroad: virtually all respondents who are currently engaged in international collaborating are working with physicists in Europe. About half of the collaborations are with Asian physicists and about one-third are with Canadians.

Tables

Table 1. Sample selection and response rates

	Total U.S. members N	U.S. w/e-mail N	Sample N	Probable contacts N	Respondents N	Response rate %
Graduate students	6999	6956	1448	1412	612	43
Junior	1708	1705	352	347	193	56
Regular	17763	17223	3684	3550	1668	47
Life, non-seniors	2560	2352	530	498	254	51
All other members	7025	5957	0	0	0	none
Total	36055	34193	6014	5807	2727	47

Footnote: Only graduate student, junior, regular, and non-senior life members were sampled in the survey. 207 invitations were undeliverable. 73 sampled members (1%) opened the questionnaire, but did not answer any questions. 1185 regular members sampled in a recent survey were not subjected to this survey sample, but are included in the column labeled “U.S. w/e-mail”.

- ◆ Only U.S.-residents whose membership type was graduate student, junior member, regular member, life member were drawn into the sample.

Table 2. Current student status by membership category, 2007

	Graduate student %	Junior %	Regular %	Life %	All %
Currently a student	83	2	1	0	19
Not a student	17	98	99	100	81
Number of respondents	610	193	1659	254	2716

- ◆ A significant number of respondents (17%) who have graduate student membership status were in the workforce and no longer students by the time of the survey. These respondents were combined with the employed junior members as a category called “recent workforce entrants” in the subsequent tables of this report. Conversely, the few junior members (2%) who indicate they were students at the time of the survey and not employed were combined with the graduate student members.

Table 3. Age of respondents, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
29 or younger	71	26	1	17
30 to 39	27	69	19	25
40 to 49	2	4	24	17
50 to 59	0	1	29	21
60 or older	0	0	27	20
Number of respondents	510	283	1898	2691

The column labeled “Graduate students” includes respondents who were students during May 2007, when the survey was conducted, and had graduate student membership status.

The column labeled “Recent workforce entrants” includes respondents who were employed during May 2007 and were either graduate student or junior members when the survey sample was drawn. Approximately 17% of members with graduate student status were employed in May 2007 and no longer students.

The column marked “Experience workforce” includes respondents who are regular and life members, employed and not employed, and excludes students.

- ◆ The ages of APS members in each of the three groups in this table are consistent with expectations. The vast majority of graduate students (79%) are 29 or younger. Most recent entrants into the workforce (69%) are in their 30’s. While the vast majority of the experienced workforce (80%) are older than 40.

Table 4. Whether or not respondents earned their bachelors in the U.S., May 2007

	Graduate students %	Recent workforce entrants %	Experienced workforce %	All %
United States	50	51	70	64
Abroad	50	49	30	36
Number of respondents	512	283	1903	2698

- ◆ Respondents were asked whether they earned their bachelors degrees in the U.S. Their replies were used as a surrogate for citizenship. It is assumed that, with comparatively few exceptions, members who reside in the U.S. and earned their bachelors in the U.S. are either U.S. citizens or on permanent visas. Similarly, it is assumed that, with comparatively few exceptions, U.S.-resident members who earned their bachelors abroad were citizens of other countries prior to arriving in the U.S.
- ◆ Nearly a third of APS members among the experienced U.S. workforce earned their bachelors degrees abroad. Half of the current U.S. student members and recent entrants in the U.S. workforce completed their undergraduate studies overseas.

Table 5. Region where respondents earned their highest degree, May 2007

	Recent workforce entrants %	Experienced workforce %	All %
United States and Canada	85	83	83
Europe	7	12	12
Asia	6	3	3
Other regions	2	2	2
Number of respondents	283	1906	2189

- ◆ About one out of six employed APS members in the U.S. earned their highest degrees abroad (not including Canada), mostly in Europe.

Table 6. Employment sector, May 2007

	Recent workforce entrants %	Experienced workforce %	All %
College, university, or university affiliated research institute	66	57	58
Federally Funded Research & Development Center	16	15	15
Industry, consulting, and small business	9	16	15
Other government	6	7	7
Other sectors	3	5	5
Number of respondents	283	1825	2108

- ◆ Recent entrants into the workforce include members who hold postdoctoral appointments. This is part of the explanation for why recent entrants are more likely to work in academe than are members in the experienced workforce.

Table 7. Members who have worked outside the U.S. for 2 months or more since highest degree, May 2007

	Recent workforce entrants %	Experienced workforce %	All %
No	91	61	65
Yes	9	39	35
Number of respondents	283	1901	2184

- ◆ Physics is viewed as an international discipline. Thus, it is not surprising that nearly two out of five experienced members working in the U.S. have worked in another country for at least 2 months since earning their highest degrees.

Table 8. The number of respondents who worked in the following regions by selected periods, May 2007

	Before 1980	1980 to 1989	1990 to 1999	2000 to 2007
	%	%	%	%
Western Europe	82	77	79	92
Eastern & Central Europe	11	10	6	6
Asia	7	14	21	23
Canada	6	3	6	4
Middle East	3	3	4	2
South America	4	3	2	1
Australia & New Zealand	2	5	4	5
Central America & Mexico	2	1	1	2
Africa	1	2	1	2
Number of respondents	195	218	323	276

Footnote: Some respondents traveled to more than one country for work within the selected time periods, which account for the column percentages adding to more than 100%. The data in this table were based upon the year in which the respondents began their work in that country.

Africa includes: Cameroon, Ethiopia, Ghana, Kenya, Libya, Mali, Nigeria, South Africa, Swaziland, Uganda

Asia includes: Armenia, China, Hong Kong, India, Indonesia, Iran, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, Turkey, Uzbekistan

Central America and Mexico includes: Antigua & Barbados, Costa Rica, Jamaica, Mexico, St. Vincent & the Grenadines

Eastern and Central Europe includes: Bulgaria, Hungary, Lithuania, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Ukraine

Western Europe includes: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Greenland, Holland, Ireland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom

Middle East includes: Iraq, Israel, Qatar

South American includes: Argentina, Brazil, Chile, Colombia, Venezuela

- ◆ A vast majority of U.S. members who have worked abroad found employment in Europe, particularly Western Europe. The economic downturn associated with the dissolution of the Soviet Union has resulted in fewer opportunities to Eastern Europe for APS members.
- ◆ Employment opportunities for APS members in Asia have increased dramatically over the past few decades.

Table 9. The number of respondents who worked in the following countries by selected periods, 2007

Before 1980		1980 to 1989		1990 to 1999		2000 to 2007	
	N		N		N		N
Germany	46	Germany	51	Germany	79	Germany	63
United Kingdom	33	France	43	United Kingdom	45	France	57
France	26	United Kingdom	23	France	38	Switzerland	35
Switzerland	26	Switzerland	22	Japan	35	United Kingdom	34
Russia	13	Japan	20	Switzerland	33	Japan	28
Canada	12	Russia	17	Canada	20	China	14
Denmark	8	Australia	9	Netherlands	18	Italy	13
Sweden	7	Canada	7	Israel	13	Australia	12
Israel	5	Denmark	7	Italy	13	Canada	11
Italy	4	Israel	6	Australia	11	Netherlands	10
Netherlands	4	Italy	6	Denmark	11	Russia	9
Ukraine	4	Netherlands	4	South Korea	9	Belgium	8
Australia	3	Poland	4	Russia	7	India	8
Brazil	3	Brazil	3	Taiwan	6	Spain	7
India	3	China	3	Belgium	5	Sweden	7
Romania	3	India	3	Sweden	5	South Korea	6
Belgium	2	Austria	2	China	4	Austria	5
Chile	2	Finland	2	India	4	Greece	5
Norway	2	Iran	2	Mexico	3	Mexico	5
Taiwan	2	Libya	2	New Zealand	3	Denmark	4
Turkey	2	Norway	2	Poland	3	Israel	4
Antigua & Barbados	1	Philippines	2	Singapore	3	Norway	4
Argentina	1	Spain	2	Spain	3	Brazil	3
Armenia	1	Sweden	2	Ukraine	3	New Zealand	2
Austria	1	Venezuela	2	Austria	2	Poland	2
China	1	Argentina	1	Brazil	2	Slovenia	2
Colombia	1	Chile	1	Hong Kong	2	Taiwan	2
Hungary	1	Greenland	1	Hungary	3	Turkey	2
Iran	1	Mexico	1	Indonesia	2	Costa Rica	1
Iraq	1	New Zealand	1	Malaysia	2	Ethiopia	1
Jamaica	1	Serbia	1	Venezuela	2	Finland	1
Japan	1	South Africa	1	Argentina	1	Ghana	1
Mali	1	St. Vincent &		Bulgaria	1	Hong Kong	1
Mexico	1	the Grenadines	1	Cameroon	1	Hungary	1
Nigeria	1	Swaziland	1	Chile	1	Ireland	1
Poland	1	Ukraine	1	Finland	1	Kenya	1
Singapore	1	Other unspecified	1	Greece	1	Malaysia	1
Thailand	1			Jamaica	1	Philippines	1
Uzbekistan	1			Lithuania	1	Qatar	1
Venezuela	1			Norway	1	Singapore	1
Other unspecified	1			South Africa	1	Slovakia	1
				Swaziland	1	South Africa	1
				Turkey	1	Uganda	1
				Uzbekistan	1	Ukraine	1
				Other unspecified	3	Venezuela	1
						Other unspecified	2
Number of respondents	195		218		323		276

Footnote: The data in this table were based upon the year in which the respondents began their work in that country.

Table 10. Members who are currently engaged with colleagues outside the U.S., May 2007

	Recent workforce entrants	Experienced workforce	All
	%	%	%
Yes	51	69	66
No	49	31	34
Number of respondents	283	1891	2174

- ◆ Caution should be used in interpreting this table. Respondents were asked if they were currently engaged with international colleagues outside the U.S. The question was intended to assess the collaboration on professional projects; however some respondents might have included their more casual correspondences with their international colleagues.
- ◆ Nearly 70% of APS members who are in the experienced workforce are currently collaborating with colleagues outside the U.S.

Table 11. Regions where collaborators with APS members live, May 2007

	Recent workforce entrants	Experienced workforce	All
	N	N	N
Africa	4	52	56
Asia	54	713	767
Australia & New Zealand	15	239	254
Central America & Mexico	7	120	127
Europe	125	1204	1329
South America	13	227	240
Canada	30	415	445
Other	0	2	2
Number of respondents	142	1299	1441

- ◆ Many APS members are collaborating simultaneously with colleagues in different parts of the world. Virtually all members (92%) who report that they are currently in collaboration do so with colleagues living in Europe. About half have collaborators residing in Asia.
- ◆ About one-third of all collaborations include colleagues in Canada.

Table 12. Conferences or meetings attended outside the U.S. by APS members within the past 3 years, May 2007

	Recent workforce entrants	Regular members in workforce	All
	%	%	%
None	52	40	42
1 to 3 conferences	37	37	37
4 or more conferences	11	23	21
Number of respondents	282	1892	2174

- ◆ The data in this table may be somewhat misleading because of the 2004 March Meeting in Montreal.
- ◆ The majority of U.S. members have attended conferences outside the U.S. within the past 3 years.

Table 13. Respondents who think that it is important for APS to provide the following international programs, May 2007

	Essential %	Very Important %	Important %	Somewhat important %	Not important %	N/A %
Free online distribution of APS journals for physicists in developing countries	23	34	27	12	2	2
Sponsored and/or reduced APS membership cost for physicists in developing countries	19	30	29	16	4	2
International Travel Grant Award Program (ITGAP) for scientists in developing countries to participate in research with physicists in the U.S.	17	31	30	15	3	4

Footnote: Respondents were asked how important it is for APS to provide selected international programs using 6 choices: “Essential”, “Very important”, “Important”, “Somewhat important”, “Not at all important”, and “Not applicable” (“N/A” in this table). This table is based upon 2670 respondents.

- ◆ Of the three programs rated by U.S.-resident members, the one that received the strongest endorsement was free on-line distribution of APS journals for physicists in developing countries. The International Travel Grant Program was rated as less important than the other two APS international programs.

Table 14. Familiarity with the APS program that provides free online distribution of APS journals for physicists in developing countries, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
Familiar with program	18	20	32	28
Number of respondents	509	282	1891	2682

- ◆ Over a quarter of the respondents were familiar with this program.
- ◆ Familiarity increases with length of time in APS, e.g. experienced workforce are twice as likely to report that they are familiar with this program as are current graduate students.

Table 15. How respondents learned about the APS program that provides free online distribution of APS journals for physicists in developing countries, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
APS News	14	45	48	45
APS website	33	26	11	14
From a colleague	24	11	7	9
Committee	0	0	3	2
Meetings	1	0	2	1
Other	1	0	1	1
Not sure, but I have heard of it	27	18	28	28
Number of respondents	90	55	612	757

- ◆ A significant percentage of those who were familiar with APS International Programs learned about those programs through APS News. Students and recent entrants into the workforce were more likely than those in later parts of their careers were more likely to learn of these programs through the APS website.

Table 16. Respondents who think it is important for APS to provide free online distribution of APS journals for physicists in developing countries, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
Important, very important or essential	89	87	83	84
Number of respondents	508	281	1884	2673

Footnote: Respondents were asked how important it is for APS to provide free online distribution of APS journals for physicists in developing countries using 6 choices “Not at all important”, “Somewhat important”, “Important”, “Very important”, “Essential”, and “Not applicable”. This table shows those who chose “Important”, “Very important” and “Essential”.

- ◆ Respondents overwhelmingly think it is important for APS to provide free online distribution of APS journals for physicists in developing countries.

Table 17. Familiarity with the APS program that provides sponsored and/or reduced APS membership for physicists in developing countries, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
Familiar with program	12	12	20	18
Number of respondents	506	282	1890	2678

- ◆ Fewer than one in five respondents were familiar with this program.
- ◆ Experienced workforce were more familiar with this program than were either graduate students or recent entrants into the workforce.

Table 18. How respondents learned about the APS program that provides sponsored and/or reduced APS membership for physicists in developing countries, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
APS News	12	31	40	37
APS website	25	35	12	15
From a colleague	28	17	13	15
Meetings	0	0	4	3
Administration	2	3	2	2
Other	2	0	2	2
Not sure, but I have heard of it	31	14	27	26
Number of respondents	59	35	376	470

- ◆ The primary sources for information about the international program providing reduced membership varied by type of member. Most graduate students learned about this program either through colleagues or through the APS website. Recent entrants into the workforce learned about this program either through the APS website or APS News. By contrast, members who were part of the experience workforce learned about the program largely from APS News.

Table 19. Respondents who think that it is important for APS to provide sponsored and/or reduced APS membership for physicists in developing countries, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
Important, very important or essential	88	81	75	76
Number of respondents	504	282	1885	2671

Respondents were asked how important it is for APS to provide sponsored and/or reduced cost APS membership for physicists in developing countries using 6 choices “Not at all important”, “Somewhat important”, “Important”, “Very important”, “Essential”, and “Not applicable”. This table shows those who chose “Important”, “Very important”, and “Essential”.

- ◆ More than three-quarters of U.S.-resident APS members rated this program as important or more strongly.
- ◆ Graduate students were significantly more likely to rate this program as important than were members in the experienced workforce.

Table 20. Familiarity with the International Travel Grant Award Program (ITGAP) for scientists in developing countries to participate in research with physicists in the U.S., May 2007

	Graduate students %	Recent workforce entrants %	Experienced workforce %	All %
Familiar with program	8	10	15	13
Number of respondents	503	282	1885	2670

- ◆ The International Travel Grant Program has very low familiarity among members.
- ◆ People become more familiar with programs the longer that they are members. Thus, APS members in the experienced workforce were more familiar with this program than were graduate students.

Table 21. How respondents learned about the International Travel Grant Award Program (ITGAP), May 2007

	Graduate students %	Recent workforce entrants %	Experienced workforce %	All %
APS News	32	36	36	36
From a colleague	18	29	17	18
APS website	24	14	9	11
Committees	0	0	6	5
Meetings	5	0	3	3
Administration	0	7	3	3
Not sure, but I have heard of it	21	14	26	24
Number of respondents	38	28	285	351

Table 22. Respondents who think the International Travel Grant Award Program (ITGAP) is important, very important or essential, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
Important, very important, or essential	88	84	75	77
Number of respondents	502	282	1883	2667

Respondents were asked how important it is for APS to provide the International Travel Grant Award Program (ITGAP) for scientists in developing countries to participate in research with physicists in the U.S. with the choices “Not at all important”, “Somewhat important”, “Important”, “Very important”, “Essential”, and “Not applicable”. This table shows those who chose “Important”, “Very important”, and “Essential”.

Table 23. Familiarity with the APS Beller and Marshak lectureships that bring distinguished scientists from abroad to give invited talks at APS meetings, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
Familiar with program	6	8	7	7
Number of respondents	501	282	1882	2665

- ◆ Very few APS members indicated that they were familiar with this program. There was no difference in familiarity by type of respondent.

Table 24. How respondents learned about the Beller and Marshak lectureships, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
APS News	32	37	34	35
From a colleague	24	29	15	18
APS website	10	29	16	16
Other	10	0	13	11
Not sure, but I have heard of it	24	5	22	20
Number of respondents	29	21	140	190

- ◆ Of the few members who report that they are familiar with this program, about one third learned about it through APS News.

Table 25. Respondent opinions on the number of invited talks through the Beller and Marshak lectureships, May 2007

	Graduate students	Recent workforce entrants	Experienced workforce	All
	%	%	%	%
Keep same number	28	27	44	39
Increase	28	32	25	26
Decrease	0	0	1	1
Don't know	44	41	30	34
Number of respondents	29	21	143	194

Footnote: Only those who were familiar with the program received this question.

- ◆ The majority of respondents who were familiar with the lectureship program either want to keep the same number or want to increase the number of invited talks. Only 1% wanted a decrease.
- ◆ Even among the few members who report that they are familiar with this program, over a third were unsure whether the number of lectures should change.

Tables with data by where respondents earned their bachelors degrees

Table 26. Region where respondents earned their highest degree, May 2007					
	Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
United States and Canada	100	70	99	45	82
Europe	0	15	1	39	12
Asia	0	12	0	11	4
Other regions	0	3	0	5	2
Number of respondents	144	139	1325	578	2186

- ◆ We assume that members who earned their bachelors degrees in the U.S. were probably U.S. citizens or here on permanent visas.
- ◆ Members who earned their bachelors in the U.S. invariably remained in the country if they pursued higher education.
- ◆ Members who earned their bachelors outside the U.S. are somewhat less likely to end up working in non-academic sectors.

Table 27. Employment sector, May 2007

	Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
University, college or university affiliated research institute	58	75	52	67	58
Federally Funded Research & Development Center	17	16	15	16	15
Industry, consulting, and small business	11	6	19	10	15
Other government	10	2	8	3	7
Other Sectors	4	1	6	4	5
Number of respondents	144	139	1256	566	2105

- ◆ U.S.-resident members who earned their bachelors degrees abroad were more likely to work in academe than were members who earned their bachelors in the U.S.
- ◆ U.S.-resident members who earned their bachelors degrees abroad were less likely to work in either the private sector or in government positions (excluding FFR&DCs) than were members who earned their bachelors in the U.S.

Table 28. Members who have worked outside the U.S. for 2 months or more since highest degree, May 2007

	Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
No	96	86	68	44	65
Yes	4	14	32	56	35
Number of respondents	144	139	1322	576	2181

- ◆ Of all U.S.-resident members who were in the experienced workforce and who earned their bachelors degrees abroad, over half have worked abroad.
- ◆ Of APS members who were in the experienced workforce and who earned their bachelors in the U.S., nearly one-third have worked abroad.

Table 29. Members who are currently engaged with colleagues outside the U.S., May 2007

	Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Yes	49	52	66	76	66
No	51	48	34	24	34
Number of respondents	144	139	1316	572	2171

- ◆ Caution should be used in interpreting this table. Respondents were asked if they were currently engaged with international colleagues outside the U.S. The question was intended to assess the collaboration on professional projects; however some respondents might have included their more casual correspondences with their international colleagues.

Table 30. Region where collaborators with APS members live, May 2007

	Recent workforce entrants		Experienced workforce		All N
	Earned Bach in U.S. N	Earned Bach abroad N	Earned Bach in U.S. N	Earned Bach abroad N	
Africa	3	1	39	13	56
Asia	32	22	476	237	767
Australia & New Zealand	4	11	183	55	253
Central America & Mexico	5	2	91	29	127
Europe	70	55	821	381	1327
South America	4	9	155	71	239
Canada	17	13	307	107	444
Other	0	0	1	1	2
Number of respondents	71	71	861	434	1437

- ◆ Virtually all members who earned their bachelors degrees in the U.S, report being engaged with colleagues in Europe. Members who earned their bachelors degrees abroad were somewhat less likely to engage with colleagues in Europe.

Table 31. Conferences or meetings outside the U.S. attended by APS members within the past 3 years, May 2007

Number of conferences attended outside U.S.	Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
None	50	53	44	30	41
1 to 3	42	33	36	39	37
4 or more	8	14	20	31	22
Number of respondents	144	138	1319	570	2171

- ◆ The majority of members who earned their bachelors in the U.S. have attended at least one conference or meeting outside the U.S. within the past 3 years.
- ◆ Of U.S.-resident members who were in the experienced workforce and who earned their bachelors abroad, about 70% have attended conferences outside the U.S.

Table 32. Familiarity with the APS program that provides free online distribution of APS journals for physicists in developing countries, May 2007

	Current graduate students		Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Familiar with program	16	20	22	17	34	29	28
Number of respondents	255	254	144	138	1317	571	2679

- ◆ Familiarity increases with length of time in APS, e.g. experienced workforce are twice as likely to report that they are familiar with this program as are current graduate students.
- ◆ Among the experienced workforce, APS members who earned their bachelors degrees in the U.S. were significantly more familiar with this program than are members who earned their bachelors abroad.

Table 33. Respondents who think it is important for APS to provide free online distribution of APS journals for physicists in developing countries, May 2007

	Current graduate students		Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Important, very important or essential	88	91	83	89	79	91	84
Number of respondents	253	253	144	137	1314	567	2670

Footnote: Respondents were asked how important it is for APS to provide free online distribution of APS journals for physicists in developing countries using 6 choices “Not at all important”, “Somewhat important”, “Important”, “Very important”, “Essential”, and “Not applicable”. This table shows those who chose “Important”, “Very important” and “Essential”.

- ◆ Regardless of whether respondents completed their undergraduate studies in the U.S., they overwhelmingly think it is important for APS to provide free online distribution of APS journals for physicists in developing countries.
- ◆ Among the experienced workforce, APS members who earned their bachelors degrees abroad were significantly more likely than those who earned their bachelors in the U.S. to report that this was an important program.
- ◆ About 58% of all respondents rated this program as either very important or essential. APS members who earned their bachelors degrees abroad were significantly more likely to rate this program strongly than those who earned bachelors in the U.S. (72% versus 49%).

Table 34. Familiarity with the APS program that provides sponsored and/or reduced APS membership for physicists in developing countries, May 2007

	Current graduate students		Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Familiar with program	12	12	13	12	21	18	18
Number of respondents	255	251	144	138	1317	570	2675

- ◆ Fewer than one in five respondents were familiar with this program.
- ◆ APS members who are part of the experienced workforce were more familiar with this program than were either graduate students or recent entrants into the workforce.
- ◆ There were no significant differences in familiarity by whether members earned their bachelors degrees in the U.S.

Table 35. Respondents who think that it is important for APS to provide sponsored and/or reduced APS membership for physicists in developing countries, May 2007

	Current graduate students		Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Important, very important or essential	84	92	77	84	71	83	78
Number of respondents	254	250	144	138	1312	570	2668

Respondents were asked how important it is for APS to provide sponsored and/or reduced cost APS membership for physicists in developing countries using 6 choices “Not at all important”, “Somewhat important”, “Important”, “Very important”, “Essential”, and “Not applicable”. This table shows those who chose “Important”, “Very important”, and “Essential”.

- ◆ More than three-quarters of U.S.-resident APS members rated this program as important, very important, or essential. APS members who earned their bachelors degrees abroad were more likely than those who earned their bachelors in the U.S. to evaluate this program as important.
- ◆ About 49% of all respondents rated this program as either very important or essential. APS members who earned their bachelors degrees abroad were significantly more likely to rate this program highly important than were those who earned bachelors in the U.S. (63% versus 42%).

Table 36. Familiarity with the International Travel Grant Award Program (ITGAP) for scientists in developing countries to participate in research with physicists in U.S., May 2007

	Current graduate students		Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Familiar with program	7	8	10	10	15	14	13
Number of respondents	254	249	144	138	1311	571	2667

- ◆ The International Travel Grant Program has very low familiarity among members regardless of whether they earned their bachelors in the U.S.
- ◆ Once again, familiarity increases with the length of time that respondents were APS members. Thus, members who are part of the experienced workforce were twice as likely as graduate student members to report being familiar with this program.

Table 37. Respondents who think the International Travel Grant Award Program (ITGAP) is important, very important or essential, May 2007

	Current graduate students		Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Important, very important or essential	84	93	81	88	70	87	79
Number of respondents	253	249	144	138	1310	570	2664

Respondents were asked how important it is for APS to provide the International Travel Grant Award Program (ITGAP) for scientists in developing countries to participate in research with physicists in the U.S. with the choices “Not at all important”, “Somewhat important”, “Important”, “Very important”, “Essential”, and “Not applicable”. This table shows those who chose “Important”, “Very important”, and “Essential”.

- ◆ The response patterns observed in Tables 33 and 35 apply to this table as well.
- ◆ About 47% of all respondents rated this program as either very important or essential. APS members who earned their bachelors degrees abroad were significantly more likely to rate this program strongly than those who earned bachelors in the U.S. (64% versus 39%).

Table 38. Familiarity with the APS Beller and Marshak lectureships that bring distinguished scientists from abroad to give invited talks at APS meetings, May 2007

	Current graduate students		Recent workforce entrants		Experienced workforce		All %
	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	Earned Bach in U.S. %	Earned Bach abroad %	
Familiar with program	6	5	4	12	8	5	7
Number of respondents	252	249	144	138	1311	568	2662

- ◆ Very few APS members indicated that they were familiar with this program. There is no difference in familiarity by whether the members earned their bachelors degrees in the U.S.

Invitation

From: "Judy R. Franz"
To: [name of APS member]
Subject: A request from the American Physical Society

Dear [name of APS member]:

I am writing to request your participation in a short APS survey. You were randomly selected to participate in this survey, which is part of our annual effort to gather feedback on member services and programs. This year the survey concerns APS's international programs. Results from this survey will help us develop programs and services to meet the needs and interests of the APS membership.

Please find the questionnaire at:

<http://www.aip.org/cgi-bin/aps.pl?id=xxxxxxxx>

Be assured that your responses will remain completely confidential. The survey and data analyses are being conducted for us by the AIP Statistical Research Center. The names of individuals will not be released in any form to the APS.

If you would prefer a paper version of the questionnaire be sent to you, or if you have any questions about the survey, please reply to this e-mail.

I thank you in advance for participating in this very important effort.

Sincerely,
Judy Franz
APS Executive Officer

Questionnaire

2007 Survey of APS Programs

INTRODUCTION

1. How old are you?

- Younger than 30 years old
- 30 to 39 years old
- 40 to 49 years old
- 50 to 59 years old
- 60 or older

2. Did you earn your undergraduate degree in the U.S.?

- No
- Yes

3. Are you currently a student?

- No
- Yes (**PLEASE SKIP TO QUESTION 12a**)

4. In which region did you earn your highest degree?

- Africa
- Asia
- Australia
- Central America or Mexico
- Europe
- South America
- United States or Canada
- Other, please specify _____

5. Which of the following best describes your primary employment sector on May 1, 2007?

- College or university
- University affiliated research institute or observatory
- Industry (medium or large company)
- Consulting firm, small company or professional practice
- Federally funded research and development center (e.g. Argonne, Brookhaven)
- Other government research laboratory or agency (e.g. NRL, NIST)
- Other, please specify _____
- I am not currently employed

6. Which of the following best describes your field of work? (Choose up to 3 choices)

- Astrophysics
- Atomic, molecular, optical physics
- Biological physics
- Chemical physics
- Condensed matter physics
- Financial Services
- Industry
- Management Administration
- Nuclear physics
- Particle physics
- Plasma physics
- Other, please specify _____

EXPERIENCE WITH INTERNATIONAL COLLABORATION

7. Have you worked outside of the United States for 2 months or more since receiving your highest degree?

- No
- Yes

8. What were the three most recent countries in which you worked?

Country	Year began	Year ended
_____	_____	_____
_____	_____	_____
_____	_____	_____

9. Do you currently engage with international colleagues outside the U.S.?

- No
- Yes

10. Please check all regions where your collaborators live:

- Africa
- Asia
- Australia
- Central America or Mexico
- Europe
- South America
- Canada
- Other _____

11. Within the past 3 years, how many conferences or meetings outside the U.S. did you attend?

- None
- 1 to 3
- 4 or more

FAMILIARITY WITH APS INTERNATIONAL PROGRAMS

12a. Are you familiar with the APS program which provides free online distribution of APS journals for physicists in developing countries?

- No (**PLEASE SKIP TO QUESTION 12c**)
- Yes

b. How did you learn about this program?

- APS website
- APS News
- From a colleague
- Other, please specify _____
- Not sure, but I have heard of it

c. How important do you think it is for APS to provide this program?

- Not at all important
- Somewhat important
- Important
- Very important
- Essential
- Not applicable

13a. Are you familiar with the APS program which provides sponsored and/or reduced cost APS membership for physicists in developing countries?

- No (**PLEASE SKIP TO QUESTION 13c**)
- Yes

b. How did you learn about this program?

- APS website
- APS News
- From a colleague
- Other, please specify _____
- Not sure, but I have heard of it

c. How important do you think it is for APS to provide this program?

- Not at all important
- Somewhat important
- Important
- Very important
- Essential
- Not applicable

14a. Are you familiar with the International Travel Grant Award Program (ITGAP) for scientists in developing countries to participate in research with physicists in the U.S.?

- No (**PLEASE SKIP TO QUESTION 14c**)
- Yes

b. How did you learn about these grants?

- APS website
- APS News
- From a colleague
- Other, please specify _____
- Not sure, but I have heard of it

c. How important do you think it is for APS to provide these grants?

- Not at all important
- Somewhat important
- Important
- Very important
- Essential
- Not applicable

15a. Are you familiar with the APS Beller and Marshak lectureships that bring distinguished scientists from abroad to give invited talks at APS meetings?

- No (**PLEASE SKIP TO QUESTION 16a**)
- Yes

b. How did you learn about these lectureships?

- APS website
- APS News
- From a colleague
- Other, please specify _____
- Not sure, but I have heard of it

c. What do you think of the number of invited talks (~3/year) through the APS lectureships?

- should remain the same
- should be decreased
- should be increased
- I do not know

d. Please explain why you think the Beller and Marshak lectureship talks should remain the same.

16a. How familiar are you with the part of the APS website that has information about visas?

- I have never heard of this part of the APS website. (**PLEASE SKIP TO QUESTION 17**)
- I have heard of this part of the APS website, but have never seen it.
- I have personally used or seen this part of the APS website

b. Please describe how the APS website with the information about visas could be improved.

SUGGESTIONS FOR IMPROVEMENT

17. Please comment on whether you think young U.S.-based physicists are currently getting enough physics-related opportunities to travel abroad. If no, what additional travel experience would be important for young physicists?

18. What additional international programs that other associations have would you like APS to consider undertaking?

19. What other advice do you have about APS international programs?

Thank you for your participation!