

**THE PHYSICAL REVIEW**

**AND**

**PHYSICAL REVIEW LETTERS**

*ANNUAL REPORT 1993*

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ANNUAL REPORT  
of  
THE PHYSICAL REVIEW  
and  
PHYSICAL REVIEW LETTERS

1993 marked the 100th anniversary of the founding of *The Physical Review*. This was commemorated by a session at the April meeting of the APS, a special issue of *Physics Today*, a traveling exhibit, the publication by APS and AIP of a history of the journal, and the preparation of a volume (to be published soon) collecting seminal articles published in the *Physical Review* journals. The journals themselves adopted special covers, with a different color for each member of the *Physical Review* family, for the centennial year starting in July 1993.

In 1993, the number of manuscripts submitted to *Physical Review* and *Physical Review Letters* increased significantly, as it has every year for more than a decade; total submissions for the year were more than 18,200, representing an increase of more than 9% over 1992, and of nearly 120% since 1983. For every month, 1993 receipts were greater than in past years (see Figure 1; this figure also displays the usual seasonal fluctuations in submissions). Published pages increased by more than 9% over 1992. The pattern of growth over the past 30 years is shown in Figure 2.

Reflecting the international nature of physics and of the *Physical Review* journals, manuscript submissions from outside the US, which have been more than those from within the US since 1989, continued to grow, not just absolutely but as a fraction of total submissions. They constituted 62% of the submissions in 1993 (see Figure 3).

In late 1993 APS appointed a Task Force on Journal Growth, to study this growth—its causes, prospects, and implications—with particular emphasis on the international aspects. Eugen Merzbacher was named as Chair of the Task Force.

To deal with the submitted manuscripts, 44,377 referrals to referees were made in 1993. Continuing efforts to expand the referee pool to deal with the increasing number of manuscripts resulted in the number of available referees in our database growing by 10%, to a total of more than 19,600.

Communications with authors and referees by electronic means are increasing. 42% of referee responses were received by electronic mail, and an additional 20% were received via FAX. The total number of incoming e-mail messages increased by 41% over 1992, and the total of incoming FAX messages increased by 15%. Similarly, outgoing e-mail messages increased by 59%, and outgoing FAXes by 25%.

Manuscript submissions by electronic mail increased by 120%, to a total of 5616 (31% of receipts). The number of articles published as compuscripts (using authors'  $\text{\LaTeX}$ / $\text{\REVTeX}$  files in the composition process) more than doubled, and constituted 29% of the text pages in the journals.

Statistics relating to the journals are given in detail in Tables I-VIII.

The distribution of topics among sections of *Physical Review A* was revised to take account of the evolution and expansion of the field of atomic, molecular, and optical physics. In the new scheme, which became effective on 1 January 1994, emphasis is placed on the new physics issues at which papers are directed, rather than the techniques or approaches used. The section on quantum optics was expanded and

a new section on atom and neutron coherence and interference was introduced.

The Task Force to review *Physical Review B* presented a preliminary report to the APS Publications Oversight Committee in the fall. A final report, and POC action on recommendations, is expected in 1994.

As a planned three-year pilot program, publication charges are not being requested for papers accepted after 30 June 1992 for publication in *Physical Review D*, or accepted after the same date for publication as compuscripts in *Physical Review C*. The hope is to test the effect of this change on the ability of the journals to attract good papers. The substantial increase in submissions to *Physical Review D* over the past two years (see Table V), and the rapid growth of compuscripts in *Physical Review C* (see Figure 4), provide preliminary indications of effectiveness.

During 1993, the decision was made to move composition of *Physical Review Letters* from the Editorial Office to an outside vendor, Beacon Graphics, by around July 1994. The SGML and PostScript files provided by Beacon Graphics will facilitate the production of an on-line version of the journal. A request for proposals for an electronic *Physical Review Letters* was issued, with responses from proposed vendors due in early 1994. The target is for production of an electronic journal in 1995.

At the end of 1993, Russell Donnelly (University of Oregon) retired after six years as Associate Editor of *Physical Review A* and *E*. Katepalli Sreenivasan (Yale University) was named as his replacement. *Physical Review D* added a new Associate Editor, Robert Pisarski (Brookhaven National Laboratory). Both began their work for the journals in January 1994.

Jennifer Slater, Associate Editor of *Physical Review B*, left the journal because of a move out of the area. Patrick Boucher was promoted to Assistant Editor of the journal, with supervisory responsibility for its Ridge editorial staff. Grenville Lister was promoted to Senior Editorial Assistant. New members of the B editorial staff were Anthony Begley, Steven Chu, and April Tully.

Christopher Wesselborg joined *Physical Review C* as the primary representative of the journal in the Ridge editorial office, with responsibilities in *Physical Review Letters* as well.

In *Physical Review Letters*, Jerome Malenfant was promoted to Assistant Editor, and Reinhardt Schuhmann was promoted to Senior Assistant to the Editors.

The complete editorial staff as of the end of the year is listed in the Appendix.

TABLE I. Numbers of articles and of “short papers” received and published by *Physical Review* 1969–1993. “Short papers” include Brief Reports, Comments, and Rapid Communications in 1981–1993; they include Comments and Addenda in 1969–1980.

	Articles		Short Papers		Total	
	Received	Published	Received	Published	Received	Published
1993	9371	7040	3334	2394	12705	9434
1992	8472	6043	3150	2208	11622	8251
1991	7652	5439	2912	2076	10564	7515
1990	7118	5162	2761	1894	9879	7056
1989	6590	5210	2744	2129	9334	7339
1988	6217	4776	2582	1994	8799	6770
1987	5840	4211	2623	1890	8463	6101
1986	5264	3932	2096	1693	7360	5625
1985	4697	3566	1993	1554	6690	5120
1984	4309	3154	1810	1364	6119	4518
1983	4023	3142	1556	1216	5579	4358
1982	3770	3052	1455	1160	5225	4212
1981	3936	3129	1463	807	5399	3936
1980	4043	3009	528	403	4571	3412
1979	3855	2945	588	396	4443	3341
1978	3784	3107	488	431	4272	3538
1977	4003	3009	555	440	4558	3449
1976	3913	2905	600	455	4513	3360
1975	3948	2951	595	441	4543	3392
1974	3754	2951	570	520	4324	3471
1973	3838	3249	625	505	4463	3754
1972	3899	2915	615	394	4514	3309
1971	3730	2862	482	394	4212	3256
1970	3640	2926	443	330	4083	3256
1969	3755	3084	298	110	4053	3194

TABLE II. Numbers of articles and of short papers received and published by individual *Physical Review* journals in 1993.

	Articles		Short Papers		No. Pages	% Pages
	Received	Published	Received	Published	Published	Published
A	1401	1002	396	296	9962	14.0
B1	2135	1701	895	648	16794	23.6
B15	2052	1803	876	654	17419	24.5
C	703	560	292	223	6066	8.5
D1	742	483	228	154	5401	7.6
D15	996	591	248	115	6018	8.5
E	1342	900	399	304	9446	13.3
Total	9371	7040	3334	2394	71106	

TABLE III. Papers received by the short-papers section of *Physical Review* in 1993.

	Direct Submissions			Transfers from PRL		
	Brief Reports	Comments	Rapid Communications	Brief Reports	Comments	Rapid Communications
A	133	37	135	18	0	73
B1	200	36	412	43	0	204
B15	166	33	441	49	0	187
C	120	31	107	8	0	26
D1	88	6	87	17	0	30
D15	121	12	82	10	0	23
E	103	23	149	31	0	93
Total	931	178	1413	176	0	636

TABLE IV. Fraction of papers not published (which includes those rejected, withdrawn, recommended for publication elsewhere, etc.) by the *Physical Review* journals for 1984-1992. Many papers submitted in 1993 are still active; hence the numbers for that year are still incomplete and are not listed.

	1984	1985	1986	1987	1988	1989	1990	1991	1992
A/A1	21.5	20.1	21.0	21.3	21.1	20.7	24.6	23.7	25.0
A15/E								25.6	24.5
B1	14.6	14.1	17.1	14.5	18.7	20.4	20.0	24.0	22.9
B15	15.0	15.0	16.7	15.9	16.2	17.6	22.4	20.9	20.5
C	13.2	15.7	14.6	15.1	17.8	17.0	20.1	18.0	21.3
D1	29.4	26.7	23.6	29.6	25.7	25.1	26.4	24.8	23.4
D15	37.0	34.7	36.8	41.8	42.4	40.4	39.2	43.4	38.4
Average	20.2	19.6	20.6	20.6	21.4	21.8	24.0	24.4	24.2

TABLE V. Distribution of receipts among the *Physical Review* journals 1970–1993. Note that in 1993 *Physical Review A1* became *Physical Review A*, and *A15* became *E*.

Total Number of Articles and BCR or CA Received											
	A1	A	A15	B1	B15	C	D1	D	D15	E	Total
1993		1797		3030	2928	995	970		1244	1741	12705
1992	1651		1518	2818	2760	911	835		1129		11622
1991	1533		1294	2693	2619	843	645		937		10564
1990	1520		1131	2460	2427	812	622		907		9879
1989		2352		2144	2348	897	662		931		9334
1988		2052		2109	2335	826	575		902		8799
1987		2006		1825	2200	880	602		950		8463
1986		1772		1271	2069	752	592		904		7360
1985		1488		1227	1814	754	572		835		6690
1984		1356		1147	1555	714	587		760		6119
1983		1242		964	1446	752	495		680		5579
1982		1154		883	1287	761	534		606		5225
1981		1125		875	1287	799	599		714		5399
1980		933		758	1013	718	507		642		4571
1979		828		705	995	730	540		645		4443
1978		799		682	906	678	535		672		4272
1977		827		702	940	741	686		662		4558
1976		873		728	963	671	618		660		4513
1975		796		794	953	738	607		655		4543
1974		854		674	884	738	545		629		4324
1973		934		654	954	674	622		625		4463
1972		793		717	988	713		1303			4514
1971		819		648	897	601		1247			4212
1970		790		604	866	603		1220			4083

TABLE VI. *Physical Review Letters* statistics. “Annual page total” does not include the index. Relevant historical notes:

Rapid Communications instituted 1 January 1981.

Changed acceptance criteria in force 1 January 1982.

Top-of-page makeup began 28 March 1983. Relaxation of 3.5 page limit to four pages follows (14% increase).

New page size introduced 7 January 1985 (12% increase). (Net size increase is 28%; new length plus new page size.)

1989–1990 Review Panel for PRL Report, August 1991; implementation 1992.

	Annual	Total	Manuscripts		Published Errata
	Page Total	Manuscripts Received	Published/Received Letters	Comments	
1977	3218	2258	950/2258	--	76
1978	3550	2244	1034/2244	--	86
1979	3771*	2438	1075/2438	--	98
1980	3862	2498	1090/2498	--	101
1981	3617	2395	984/2252	48/143	64
1982	3779	2421	1017/2250	96/171	65
1983	4542	2902	1149/2702	101/200	79
1984	4950*	3116	1240/2864	115/252	91
1985	5697*	3405	1440/3143	164/262†	90
1986	6186	3774	1525/3455	198/319†	106
1987	5841	4110	1442/3787	191/323†	98
1988	5784	4131	1391/3831	232/300†	96
1989	5957	4200	1449/3844	230/356†	103
1990	6662*	4483	1599/4136	199/347†	76
1991	7195	5035	1760/4706	171/329†	70
1992	7780	5466	1909/5102	189/364†	61
1993	8565	5807	2088/5515	176/292‡	81

\* 53 issues in these years (52 in other years).

† Only published Reply Comments counted as “Manuscripts Received”, starting 1 July 1985.

‡ Reply Comments are not counted as “Manuscripts Received”, starting 1 January 1993.

TABLE VII. *Physical Review Letters* statistics by subject areas 1986–1993. Comments are not included. The data refers to manuscripts received in the specified year and how many of them were subsequently published, in that year or later. The subject areas are the ones defined by PACS, not by the organization of the journal’s Table of Contents (since that organization has varied in this time period).

PACS	published (% accept. rate) receipts for yr (% total receipts)			Letters only (Comments not included)				
	1986	1987*	1988	1989	1990	1991	1992	1993†
General Physics	118(28) 417(12)	105(30) 351( 9)	142(31) 457(12)	124(26) 482(13)	124(25) 491(12)	137(25) 549(12)	169(27) 636(12)	141(21) 658(12)
Elementary Particles	217(51) 427(12)	178(46) 389(10)	156(46) 341( 9)	168(41) 407(11)	155(42) 365( 9)	152(39) 389( 8)	155(41) 375( 7)	138(32) 426( 8)
Nuclear Physics	124(44) 279( 8)	96(41) 236( 6)	106(44) 242( 6)	81(38) 213( 6)	96(44) 218( 5)	110(46) 237( 5)	108(44) 248( 5)	88(35) 251( 5)
Atomic & Molecular	136(54) 253( 7)	118(50) 238( 6)	119(46) 261( 7)	115(47) 246( 6)	103(47) 219( 5)	138(49) 281( 6)	131(43) 306( 6)	136(39) 353( 6)
Optics & Fluids	108(46) 233( 7)	105(44) 241( 6)	121(39) 307( 8)	119(43) 279( 7)	157(44) 353( 8)	163(42) 386( 8)	165(39) 419( 8)	165(33) 493( 9)
Plasma Physics	77(45) 170( 5)	83(45) 186( 5)	87(48) 181( 5)	63(42) 149( 4)	82(46) 178( 4)	79(46) 171( 4)	92(47) 194( 4)	73(34) 216( 4)
Condensed Matter Structure	364(52) 702(20)	309(44) 699(18)	300(45) 663(17)	290(43) 680(18)	343(45) 760(18)	406(46) 879(19)	418(42) 986(19)	391(39) 1015(18)
Condensed Matter Electronic	368(44) 829(24)	372(30) 1250(33)	360(30) 1189(31)	438(38) 1167(30)	513(39) 1302(31)	580(38) 1535(33)	621(38) 1651(32)	555(32) 1752(32)
Cross Disciplinary	29(45) 65( 2)	30(33) 92( 2)	37(39) 96( 3)	38(29) 124( 3)	59(50) 119( 3)	71(43) 166( 4)	48(32) 150( 3)	70(32) 218( 4)
Astrophysics & Geophysics	30(37) 82( 2)	41(39) 105( 3)	46(50) 92( 2)	42(45) 93( 2)	44(34) 129( 3)	43(38) 112( 2)	47(36) 130( 3)	34(27) 124( 4)
TOTAL	1571(45) 3457	1437(38) 3787	1474(38) 3829	1478(38) 3840	1676(40) 4134	1879(40) 4705	1954(38) 5095	1791(33) 5506

\* In 1987 high- $T_c$  superconductivity was discovered. As a result the submissions to the Condensed Matter Electronic Structure section increased. The PRL acceptance rate dropped since most sent their high- $T_c$  papers to PRL and a higher number than usual were transferred to PR to be published. If all papers in this section are ignored, then the PRL acceptance rate is 42% for 1987 and 1988, and 39% for 1989.

† The data for papers published (and acceptance rate) are not complete; some papers submitted in 1993 may yet be published.

TABLE VIII. Subscription data for the end of the subscription years in 1993. The numbers in parentheses show the changes from the previous year.

	Member	Student	Nonmember	Total
A	709(- 61)	14(- 2)	1845(-120)	2568(- 183)
B1	711(- 31)	10(- 3)	2003(- 50)	2724(- 84)
B15	742(- 58)	15( 0)	2002(- 51)	2759(- 109)
C	633(- 59)	7(- 18)	1413(- 35)	2053(- 112)
D1	710(- 49)	19(- 8)	1500(- 46)	2229(- 103)
D15	750(- 70)	23(- 9)	1502(- 44)	2275(- 123)
E	492(- 81)	14(- 1)	1946(- 19)	2452(- 101)
L	4017(-429)	112(- 87)	2547(- 45)	6676(- 561)
Total	8764(-838)	214(-128)	14758(-410)	23736(-1376)

## APPENDIX. Editorial Staff

### Crossjournal editorial administration:

Editor-in-Chief	Benjamin Bederson*
Administrative Editor	Stanley G. Brown
Publication Editor	Reid Terwilliger
Editorial Administrative Assistant	Barbara Maddaloni

### Individual-journal editorial staff:

Editors	Peter D. Adams	(B)	
	Sam M. Austin*	(C)	
	George Basbas	(L)	
	Lowell S. Brown*	(D)	
	Stanley G. Brown	(L)	
	Bernd Crasemann*	(A)	
	D. Nordstrom	(D)	
	Irwin Oppenheim*	(E)	
	Jack Sandweiss*	(L)	
	Gene L. Wells	(L)	
	Associate Editors	Russell J. Donnelly*	(E)
		Benjamin F. Gibson*	(C)
		Allen Goland*	(B)
Gerald Hedstrom*		(E)	
Brant M. Johnson*		(A, E, and L)	
Kelvin Lynn*		(B)	
William J. Marciano*		(D)	
Robert L. McGrath*		(C)	
Lorenzo Narducci*		(A)	
Laurence Passell*		(B)	
Stephen J. Smith*		(A)	
Myron Strongin*		(B)	
Michael Weinert*	(B)		
Assistant Editor/Journal Manager	Carol B. Kraner	(A and E)	
Assistant Editors	Patrick Boucher	(B)	
	Jerome Malenfant	(L)	
Senior Assistants to the Editors	Margaret Malloy	(A and E)	
	Valerie L. Miller	(A and E)	
	Anne Waldron	(L)	
	Christopher Wesselborg	(C and L)	
Assistants to the Editors	Reinhardt B. Schuhmann	(L)	
	Debbie Brodbar	(C and L)	
	George Michel	(B)	
Senior Editorial Assistants	Joanna Popadiuk	(A and E)	
	Grenville Lister	(B)	
	Bill Piel	(A and E)	
	John Ripka	(D)	
Editorial Assistants	S. Weiskop	(D)	
	Steven Chu	(B)	
	Margaret Foster	(A and E)	
	Lora Kramer	(B)	
	Hans Michel	(L)	
	April Tully	(B)	

\*Part time consultants. The remaining personnel are predominantly full time at the Ridge Editorial Office, except Reid Terwilliger who is resident at both the Ridge and Woodbury, NY locations.

FIG. 1. Numbers of manuscripts submitted to *Physical Review* and *Physical Review Letters* each month for the years 1991–1993. *Physical Review Letters* Comments were not counted before July 1993.

FIG. 2. Number of papers and corresponding pages published in *Physical Review* (PR) and *Physical Review Letters* (PRL) from 1963 through 1993. The PR figures include Comments, Communications, and Addenda in 1969–1980, and include Brief Reports, Comments, and Rapid Communications in 1981–1993; the PRL figures include Comments in 1974–1977 and 1981–1993. APS membership is given for comparison.

FIG. 3. Number of manuscripts submitted to *Physical Review* and *Physical Review Letters* from 1981 to 1993 by US and non-US authors. The classification is based on the address of the corresponding author; since international collaborations are likely to choose a US-based author as the corresponding author, this probably overstates the number of US submissions and understates the non-US submissions. (Comments submitted to *Physical Review Letters* are not included for 1981–1992; PRL Comments, but not Replies, are included for 1993.)

FIG. 4. Percentage of the published pages in the various journals published as L<sup>A</sup>T<sub>E</sub>X/REVT<sub>E</sub>X compuscripts (using the authors' files in the composition process). 1990–1992 statistics given for *Physical Review E* are those for its predecessor, *Physical Review A15*. Compuscripts were introduced in *Physical Review Letters* in June 1992; the 1992 figures for PRL refer only to volume 69.

Figures are available as PostScript files:

ann\_rpt\_93\_fig1.ps  
ann\_rpt\_93\_fig.2.ps  
ann\_rpt\_93\_fig3.ps  
ann\_rpt\_93\_fig4.ps