

Appendix table 5-47

**S&E articles in mathematics, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>World</b>																
Total articles	9,747	11,569	12,307	13,515	14,210	13,538	15,205	14,252	15,709	15,738	16,403	19,592	19,540	18,177	18,357	18,763
with multiple institutions	3,808	4,646	5,277	5,938	6,102	6,217	7,178	6,879	7,499	7,802	8,196	9,962	10,284	9,699	10,081	10,326
with domestic institutions only	7,668	8,995	9,326	10,124	10,746	9,981	11,002	10,434	11,446	11,350	11,974	14,158	13,884	12,848	12,696	13,051
with international institutions	2,079	2,574	2,981	3,391	3,464	3,557	4,203	3,818	4,263	4,388	4,429	5,434	5,656	5,329	5,661	5,712
<b>Canada</b>																
Total articles	530	574	615	605	608	623	742	716	842	815	807	969	1,007	902	871	893
with multiple institutions	330	342	381	385	385	431	498	487	585	549	543	679	689	620	614	636
with domestic institutions only	251	284	282	267	279	249	308	316	360	338	345	377	396	352	338	352
with international institutions	279	290	333	338	329	374	434	400	482	477	462	592	611	550	533	541
<b>Mexico</b>																
Total articles	49	58	75	73	99	108	108	124	140	115	117	156	125	145	132	144
with multiple institutions	31	40	48	48	65	79	69	92	99	88	84	108	94	112	103	110
with domestic institutions only	23	25	37	34	42	40	54	51	56	45	50	68	47	57	46	54
with international institutions	26	33	38	39	57	68	54	73	84	70	67	88	78	88	86	90
<b>United States</b>																
Total articles	3,580	4,113	4,267	4,532	4,469	4,389	4,667	4,402	4,854	4,872	4,761	5,608	5,411	4,896	5,125	5,342
with multiple institutions	1,829	2,148	2,305	2,512	2,487	2,569	2,733	2,624	2,819	2,936	2,934	3,454	3,414	3,087	3,280	3,427
with domestic institutions only	2,545	2,890	2,894	3,032	2,897	2,795	2,920	2,785	3,062	3,067	2,948	3,463	3,251	2,902	2,985	3,108
with international institutions	1,035	1,223	1,373	1,500	1,572	1,594	1,747	1,617	1,792	1,805	1,813	2,145	2,160	1,994	2,140	2,234
<b>Argentina</b>																
Total articles	39	26	58	78	65	84	74	72	78	85	113	119	123	123	109	129
with multiple institutions	17	14	30	45	29	53	47	49	49	57	85	77	96	88	89	99
with domestic institutions only	26	12	35	45	42	48	41	38	39	46	48	59	53	69	49	61
with international institutions	13	14	23	33	23	36	33	34	39	39	65	60	70	54	60	68
<b>Brazil</b>																
Total articles	128	165	175	208	236	253	287	259	289	301	283	377	397	410	381	413
with multiple institutions	72	101	117	145	161	161	201	169	200	201	206	257	284	300	292	307
with domestic institutions only	70	81	88	102	122	135	135	134	144	155	145	190	194	189	175	195
with international institutions	58	84	87	106	114	118	152	125	145	146	138	187	203	221	206	218
<b>Chile</b>																
Total articles	37	56	42	57	55	70	97	86	91	111	106	140	139	142	141	145
with multiple institutions	23	39	36	43	40	60	74	72	68	94	84	114	116	117	110	113
with domestic institutions only	19	25	14	21	19	20	34	25	29	36	32	41	38	43	46	49
with international institutions	18	31	28	36	36	50	63	61	62	75	74	99	101	99	95	96
<b>Austria</b>																
Total articles	87	98	100	131	165	167	188	157	190	211	218	258	260	234	270	261
with multiple institutions	45	54	56	70	82	95	109	94	121	136	147	174	185	152	168	172
with domestic institutions only	44	49	53	66	87	83	90	74	90	89	81	105	91	95	118	108
with international institutions	43	49	47	65	78	84	98	83	100	122	137	153	169	139	152	153

Appendix table 5-47

**S&E articles in mathematics, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Belgium</b>																
Total articles	111	128	178	167	176	166	225	235	237	234	235	308	300	276	237	270
with multiple institutions	63	83	118	100	100	104	141	133	143	138	136	184	203	190	164	182
with domestic institutions only	49	52	70	75	85	71	94	113	114	111	121	149	119	112	98	107
with international institutions	62	76	108	92	91	95	131	122	123	123	114	159	181	164	139	163
<b>Czech Republic</b>																
Total articles	59	77	81	106	142	115	119	117	135	139	170	209	214	242	186	223
with multiple institutions	36	39	49	66	78	75	80	82	114	100	117	146	172	178	147	171
with domestic institutions only	24	42	35	46	70	51	48	53	41	57	67	93	64	92	59	83
with international institutions	35	35	46	60	72	64	71	64	94	82	103	116	150	150	127	140
<b>Denmark</b>																
Total articles	81	82	108	97	97	94	114	102	109	112	89	87	113	97	99	107
with multiple institutions	37	51	66	67	56	59	67	55	55	66	54	62	83	67	75	75
with domestic institutions only	46	35	47	36	50	44	53	54	57	51	40	27	37	37	31	37
with international institutions	35	47	61	61	47	50	61	48	52	61	49	60	76	60	68	70
<b>Finland</b>																
Total articles	55	62	83	103	90	93	118	103	95	113	119	130	126	121	133	143
with multiple institutions	27	41	44	69	54	49	83	71	61	66	76	78	86	78	89	95
with domestic institutions only	32	25	46	46	44	52	48	48	39	62	59	62	50	49	52	56
with international institutions	23	37	37	57	46	41	70	55	56	51	60	68	76	72	81	87
<b>France</b>																
Total articles	1,179	1,398	1,509	1,620	1,709	1,674	1,904	1,640	1,837	1,760	1,704	2,004	2,171	2,075	2,077	2,008
with multiple institutions	548	690	752	865	920	938	1,118	996	1,082	1,053	1,073	1,303	1,480	1,458	1,505	1,456
with domestic institutions only	821	943	997	1,029	1,050	1,009	1,107	914	1,069	1,027	930	1,039	1,074	1,031	971	937
with international institutions	358	455	512	591	659	665	797	726	768	733	774	965	1,097	1,044	1,106	1,071
<b>Germany</b>																
Total articles	837	1,065	1,201	1,329	1,292	1,228	1,363	1,244	1,375	1,338	1,347	1,628	1,592	1,436	1,582	1,647
with multiple institutions	388	513	643	732	678	694	783	723	793	823	826	1,033	979	942	1,046	1,051
with domestic institutions only	517	624	659	703	709	608	661	631	701	622	635	733	759	633	685	786
with international institutions	320	441	542	626	583	620	702	613	674	716	712	895	833	803	897	861
<b>Greece</b>																
Total articles	60	108	88	93	121	97	121	123	141	155	125	149	157	125	155	146
with multiple institutions	32	61	43	54	59	48	61	70	68	93	83	87	93	75	101	102
with domestic institutions only	34	68	58	47	76	66	78	71	94	82	61	83	84	71	76	58
with international institutions	26	40	30	46	45	31	43	52	47	73	64	66	73	54	79	88
<b>Hungary</b>																
Total articles	65	111	106	140	142	126	156	122	159	155	140	198	183	141	151	186
with multiple institutions	40	65	69	98	85	82	102	81	103	106	108	134	126	109	95	135
with domestic institutions only	27	48	46	47	60	51	61	50	66	61	44	85	80	45	65	73
with international institutions	38	63	60	93	82	75	95	72	93	94	96	113	103	96	86	113

Appendix table 5-47

**S&E articles in mathematics, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Ireland</b>																
Total articles	36	46	59	70	59	48	58	59	76	88	80	88	79	92	94	84
with multiple institutions	19	23	41	42	36	31	40	39	60	58	59	68	53	66	63	48
with domestic institutions only	18	25	21	31	25	20	23	25	22	32	24	25	30	29	34	38
with international institutions	18	21	38	39	34	28	35	34	54	56	56	63	49	63	60	46
<b>Italy</b>																
Total articles	507	555	613	708	799	800	915	820	924	946	920	1,182	1,169	1,153	1,086	1,183
with multiple institutions	291	298	366	442	466	472	572	532	591	635	602	789	801	810	755	813
with domestic institutions only	296	326	376	390	494	470	498	458	511	506	506	627	606	603	531	590
with international institutions	211	229	237	318	305	330	417	362	413	440	414	555	563	550	555	593
<b>Netherlands</b>																
Total articles	186	188	204	257	243	211	288	227	243	240	221	260	284	249	265	246
with multiple institutions	102	105	137	177	159	141	204	149	167	166	154	180	198	188	207	178
with domestic institutions only	99	100	82	109	115	89	109	91	105	89	89	104	110	85	80	92
with international institutions	87	88	122	148	128	122	179	136	138	151	132	156	174	164	185	154
<b>Poland</b>																
Total articles	146	194	234	238	291	273	305	301	298	273	351	404	442	411	439	428
with multiple institutions	79	87	125	131	146	151	168	187	155	162	173	223	228	237	238	235
with domestic institutions only	75	119	123	132	166	146	165	141	169	135	210	218	259	221	242	230
with international institutions	71	75	111	106	125	127	140	160	129	138	141	186	183	190	197	198
<b>Portugal</b>																
Total articles	36	53	48	59	96	98	121	99	142	136	123	182	209	188	230	209
with multiple institutions	25	34	31	37	51	60	80	74	93	92	82	127	149	136	172	164
with domestic institutions only	13	24	18	29	56	48	62	39	78	67	60	84	104	88	99	88
with international institutions	23	29	30	30	40	50	59	60	64	69	63	98	105	100	131	121
<b>Spain</b>																
Total articles	370	410	540	644	653	619	770	700	753	774	822	1,011	996	949	876	954
with multiple institutions	204	208	294	369	367	363	487	409	497	503	552	669	703	672	657	680
with domestic institutions only	232	273	340	386	386	369	423	414	405	417	436	535	477	450	378	451
with international institutions	138	137	200	258	267	250	347	286	348	357	386	476	519	499	498	503
<b>Sweden</b>																
Total articles	117	153	183	189	166	177	217	217	227	225	223	248	243	228	199	204
with multiple institutions	61	73	106	115	86	113	136	134	122	122	134	162	165	149	137	142
with domestic institutions only	67	92	91	95	96	81	102	111	122	126	104	120	107	103	84	83
with international institutions	50	61	92	94	70	96	115	106	105	99	119	128	136	125	115	121
<b>United Kingdom</b>																
Total articles	745	878	941	1,018	996	963	1,057	965	1,060	1,163	1,179	1,344	1,356	1,248	1,363	1,310
with multiple institutions	373	445	518	568	546	567	626	585	655	694	710	845	856	781	891	870
with domestic institutions only	458	532	535	548	553	488	539	471	494	581	569	625	615	579	596	554
with international institutions	287	346	406	470	443	475	518	494	566	582	610	719	741	669	767	756

Appendix table 5-47

**S&E articles in mathematics, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Norway</b>																
Total articles	50	67	65	73	102	62	76	95	81	91	97	144	153	126	134	132
with multiple institutions	30	33	40	45	67	43	59	67	57	49	66	100	119	84	94	105
with domestic institutions only	25	39	42	37	50	26	28	40	32	49	44	62	51	52	51	43
with international institutions	25	28	23	36	52	36	48	55	49	42	53	82	102	74	83	89
<b>Russia</b>																
Total articles	331	411	398	580	670	672	696	641	701	436	700	710	664	618	543	722
with multiple institutions	130	177	205	269	288	286	320	300	329	239	288	311	313	307	296	372
with domestic institutions only	218	253	209	354	433	432	427	396	429	218	492	456	412	369	303	473
with international institutions	113	158	189	226	237	240	269	245	272	218	208	254	252	249	240	249
<b>Switzerland</b>																
Total articles	113	139	162	170	164	204	209	190	235	225	217	263	276	215	292	331
with multiple institutions	62	81	99	110	91	122	139	117	151	134	141	178	176	145	209	239
with domestic institutions only	54	59	69	65	80	86	74	80	92	94	83	93	107	79	90	98
with international institutions	59	80	93	105	84	118	135	110	143	131	134	170	169	136	202	233
<b>Iran</b>																
Total articles	10	25	30	28	45	36	52	69	88	83	141	189	216	212	225	267
with multiple institutions	2	7	13	16	35	22	33	46	55	49	71	103	112	122	134	172
with domestic institutions only	8	22	23	19	32	29	33	51	59	66	108	149	162	144	157	176
with international institutions	2	3	7	9	13	7	19	18	29	17	33	40	54	68	68	91
<b>Israel</b>																
Total articles	274	321	344	370	377	350	399	322	363	399	332	462	406	357	400	374
with multiple institutions	168	180	223	238	243	247	262	206	229	266	223	284	265	242	272	252
with domestic institutions only	127	168	149	161	163	140	172	135	166	176	148	232	178	148	160	161
with international institutions	147	153	195	209	214	210	227	187	197	223	184	230	228	209	240	213
<b>Saudi Arabia</b>																
Total articles	22	17	16	14	27	28	24	18	28	34	34	55	60	85	111	118
with multiple institutions	4	6	5	6	9	13	13	9	17	20	16	34	38	63	90	91
with domestic institutions only	19	11	13	9	20	16	11	9	14	14	18	23	24	25	24	28
with international institutions	3	6	3	5	7	12	13	9	14	20	16	32	36	60	87	90
<b>Turkey</b>																
Total articles	28	39	50	55	71	55	83	104	121	146	166	197	195	165	197	151
with multiple institutions	19	18	27	29	39	26	42	50	51	68	84	95	99	86	111	96
with domestic institutions only	12	24	26	27	38	32	48	67	84	104	107	131	135	113	124	82
with international institutions	16	15	24	28	33	23	35	37	37	42	59	66	60	52	73	69
<b>Egypt</b>																
Total articles	11	18	14	19	9	20	22	26	33	30	36	42	32	29	34	27
with multiple institutions	5	4	9	11	2	10	11	17	19	15	23	20	20	20	27	18
with domestic institutions only	6	15	6	8	8	10	14	13	20	21	20	25	16	12	19	11
with international institutions	5	3	8	11	1	10	8	13	13	9	16	17	16	17	15	16

Appendix table 5-47

**S&E articles in mathematics, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>South Africa</b>																
Total articles	34	47	62	64	56	62	62	49	54	69	82	85	96	59	86	85
with multiple institutions	19	29	20	36	35	36	45	34	33	42	55	54	62	35	60	57
with domestic institutions only	17	21	45	30	25	28	21	16	28	32	40	37	40	27	30	32
with international institutions	17	26	17	34	31	34	41	33	26	37	42	48	56	32	56	53
<b>China</b>																
Total articles	501	608	689	853	997	1,017	1,299	1,392	1,548	1,746	2,072	2,678	2,927	2,748	2,900	2,769
with multiple institutions	237	316	382	462	594	620	784	878	962	1,080	1,281	1,637	1,872	1,741	1,891	1,841
with domestic institutions only	347	409	436	560	652	659	838	916	1,034	1,167	1,463	1,905	2,044	1,920	2,008	1,855
with international institutions	154	199	253	293	345	358	461	476	514	579	609	773	883	828	892	914
<b>India</b>																
Total articles	134	149	180	179	175	173	201	206	214	215	231	280	330	291	302	296
with multiple institutions	52	82	92	84	95	88	96	102	122	126	115	162	206	173	175	167
with domestic institutions only	102	99	112	118	101	112	130	132	126	126	155	176	186	175	177	183
with international institutions	32	50	68	61	74	61	71	74	88	89	76	104	144	116	125	113
<b>Japan</b>																
Total articles	419	590	627	739	889	709	881	797	762	815	791	972	936	899	901	906
with multiple institutions	146	222	263	329	363	334	408	376	329	403	380	467	485	455	451	509
with domestic institutions only	344	468	495	563	687	518	648	585	553	539	561	710	638	621	620	589
with international institutions	75	122	132	176	202	191	233	212	209	276	230	262	298	278	281	317
<b>Singapore</b>																
Total articles	60	67	88	102	125	127	136	125	118	139	142	161	123	129	123	125
with multiple institutions	27	38	50	68	70	84	92	94	76	106	107	128	95	102	95	93
with domestic institutions only	36	33	40	36	59	61	60	48	53	49	53	62	35	39	36	40
with international institutions	24	34	48	66	66	66	76	77	65	90	89	99	88	90	87	85
<b>South Korea</b>																
Total articles	111	158	174	204	233	240	314	271	324	343	366	428	413	395	459	466
with multiple institutions	61	91	89	102	134	137	194	167	195	205	223	281	268	243	318	343
with domestic institutions only	70	94	113	143	140	150	182	167	184	201	210	247	230	240	249	230
with international institutions	41	64	61	61	93	90	132	104	140	142	156	181	183	155	210	236
<b>Taiwan</b>																
Total articles	123	160	164	192	212	184	197	211	222	246	253	359	372	341	271	280
with multiple institutions	43	73	80	105	119	110	130	130	153	161	164	243	255	229	176	198
with domestic institutions only	96	107	104	121	136	109	109	115	120	144	145	199	200	177	141	148
with international institutions	27	53	60	71	76	75	88	96	102	102	108	160	172	164	130	132
<b>Australia</b>																
Total articles	294	326	350	362	356	331	339	368	381	349	344	408	426	377	405	422
with multiple institutions	167	189	190	204	228	226	232	240	260	237	240	292	298	260	299	305
with domestic institutions only	144	155	186	184	156	125	129	155	144	134	129	141	163	140	132	159
with international institutions	150	171	164	178	200	206	210	213	237	215	215	267	263	237	273	263

## Appendix table 5-47

**S&E articles in mathematics, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
New Zealand																
Total articles	59	67	57	70	75	81	67	82	72	94	71	88	84	93	91	95
with multiple institutions	39	42	43	40	44	48	42	54	53	68	53	72	58	74	76	72
with domestic institutions only	24	28	18	32	34	38	28	33	21	29	19	17	30	24	21	27
with international institutions	35	39	39	38	41	43	39	49	51	65	52	71	54	69	70	68

NOTES: Article counts are from the set of journals covered by the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles are classified by the year they entered the database, rather than the year of publication, and are assigned to a country/economy on the basis of the institutional address(es) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating country/economy is credited with one count). Countries/economies with less than 1% of internationally coauthored articles in 2012 are omitted. Articles with multiple institutions are counts of articles with two or more institutional addresses. Articles with domestic institutions only are counts of articles with one or more institutional addresses all within the country/economy. Articles with international institutions are counts of articles with one or more institutional addresses outside the country/economy.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2013) from Thomson Reuters, SCI and SSCI, [http://thomsonreuters.com/products\\_services/science/](http://thomsonreuters.com/products_services/science/).

*Science and Engineering Indicators 2014*