

TABLE S8-60

Citation of S&E articles in USPTO patents, including utility, design, and plant patents, by cited field and cited author address, by sector: 2013–18

(Number)

Field, country, and sector	All patents						Utility patents						Design patents						Plant patents					
	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
All fields, all sectors	630,385	693,022	683,934	663,339	676,983	640,330	629,274	692,794	683,362	662,457	676,359	639,660	1,083	214	542	849	530	644	28	14	30	33	94	26
Foreign	324,447	360,562	361,057	352,030	363,427	346,840	323,820	360,430	360,773	351,593	363,093	346,504	622	124	273	431	284	321	6	9	12	6	50	16
Unknown country	3,430	3,559	3,237	3,020	2,967	2,680	3,421	3,558	3,227	3,013	2,964	2,674	9	1	9	6	3	6	0	0	0	0	0	0
United States	302,508	328,901	319,640	308,289	310,589	290,809	302,034	328,806	319,362	307,851	310,303	290,483	452	90	260	412	242	317	22	5	18	27	44	10
Academic	196,677	213,693	211,001	206,038	207,680	196,235	196,407	213,626	210,845	205,725	207,492	196,003	261	63	139	289	148	223	9	5	16	25	41	10
Business	56,945	62,549	57,998	54,306	54,881	49,611	56,859	62,539	57,948	54,278	54,845	49,563	85	10	51	28	37	47	1	0	0	0	0	0
Federal government	12,047	12,724	12,451	11,964	11,876	11,536	12,019	12,723	12,443	11,943	11,864	11,531	17	0	6	19	9	5	10	0	2	2	3	0
FFRDCs	5,988	6,710	6,256	6,235	6,268	5,834	5,977	6,709	6,254	6,235	6,266	5,832	11	2	2	0	3	2	0	0	0	0	0	0
Nonprofit	15,504	16,814	16,966	15,776	15,755	14,725	15,469	16,812	16,929	15,742	15,741	14,706	35	1	37	33	14	19	0	0	0	0	0	0
State and local government	298	318	272	315	243	242	298	317	272	314	243	242	0	1	0	2	0	0	0	0	0	0	0	0
Joint and unknown sectors	15,049	16,092	14,696	13,655	13,885	12,626	15,005	16,081	14,671	13,613	13,852	12,606	42	12	24	41	32	20	2	0	0	1	1	0
Agricultural sciences	3,307	3,587	3,336	3,186	3,287	3,244	3,295	3,577	3,328	3,161	3,251	3,220	8	0	0	11	0	7	4	10	8	14	36	17
Foreign	1,926	2,152	2,164	2,117	2,185	2,154	1,920	2,147	2,159	2,106	2,168	2,140	6	0	0	10	0	6	0	5	5	1	17	8
Unknown country	12	8	12	5	8	6	12	8	12	5	8	6	0	0	0	0	0	0	0	0	0	0	0	0
United States	1,369	1,426	1,160	1,065	1,094	1,084	1,363	1,421	1,157	1,051	1,075	1,074	2	0	0	1	0	1	4	5	3	13	19	9
Academic	922	1,015	824	717	773	762	921	1,010	821	705	755	753	1	0	0	1	0	0	0	5	2	11	17	9
Business	151	131	111	110	102	114	151	131	111	109	102	114	0	0	0	0	0	0	0	0	0	0	0	0
Federal government	204	181	151	173	152	156	200	181	150	172	151	155	0	0	0	0	0	1	4	0	1	1	1	0
FFRDCs	3	4	7	9	11	5	3	4	7	9	11	5	0	0	0	0	0	0	0	0	0	0	0	0
Nonprofit	5	5	7	4	5	5	5	5	7	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0
State and local government	1	1	2	1	0	1	1	1	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	83	89	59	51	51	41	83	89	59	50	50	40	1	0	0	0	0	0	0	0	0	1	1	0
Astronomy and astrophysics	99	138	102	180	120	114	99	138	102	179	120	114	0	0	0	1	0	0	0	0	0	0	0	0
Foreign	62	85	61	115	77	62	62	85	61	114	77	62	0	0	0	1	0	0	0	0	0	0	0	0
Unknown country	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	37	53	41	65	43	52	37	53	41	65	43	52	0	0	0	0	0	0	0	0	0	0	0	0
Academic	17	25	20	36	17	29	17	25	20	36	17	29	0	0	0	0	0	0	0	0	0	0	0	0
Business	7	13	7	11	2	5	7	13	7	11	2	5	0	0	0	0	0	0	0	0	0	0	0	0
Federal government	1	3	5	8	10	8	1	3	5	8	10	8	0	0	0	0	0	0	0	0	0	0	0	0
FFRDCs	8	10	7	7	10	8	8	10	7	7	10	8	0	0	0	0	0	0	0	0	0	0	0	0
Nonprofit	2	3	0	0	2	1	2	3	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
State and local government	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	1	0	2	3	3	0	1	0	2	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Biological and biomedical sciences	169,501	183,498	184,400	174,177	179,761	176,230	169,434	183,490	184,359	174,111	179,661	176,191	51	5	21	47	42	30	16	3	20	19	58	9

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(Number)

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	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
United States	33,559	37,672	35,137	34,655	35,507	32,140	33,498	37,666	35,112	34,589	35,457	32,051	61	6	24	66	51	90	0	0	1	0	0	0
Academic	21,402	24,359	23,777	23,892	24,424	22,208	21,362	24,355	23,761	23,843	24,395	22,142	40	4	15	49	29	66	0	0	1	0	0	0
Business	7,990	8,671	7,138	6,515	6,810	5,988	7,984	8,669	7,131	6,508	6,795	5,968	7	2	7	7	15	20	0	0	0	0	0	0
Federal government	791	870	865	793	871	838	787	870	865	792	871	837	4	0	0	1	0	1	0	0	0	0	0	0
FFRDCs	1,247	1,398	1,227	1,373	1,357	1,321	1,242	1,398	1,227	1,373	1,357	1,320	5	0	0	0	0	1	0	0	0	0	0	0
Nonprofit	792	890	754	669	599	457	789	890	753	663	594	455	3	0	1	6	6	2	0	0	0	0	0	0
State and local government	17	26	21	30	17	13	17	26	21	30	17	13	0	0	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	1,320	1,458	1,355	1,382	1,429	1,316	1,318	1,458	1,354	1,380	1,429	1,316	2	0	1	3	1	0	0	0	0	0	0	0
Geosciences, atmospheric, and ocean sciences	2,993	3,566	3,241	2,938	3,638	3,226	2,977	3,564	3,241	2,937	3,632	3,219	16	2	0	1	6	7	0	0	0	0	0	0
Foreign	1,422	1,744	1,539	1,428	1,815	1,592	1,406	1,744	1,539	1,428	1,811	1,586	16	0	0	0	4	6	0	0	0	0	0	0
Unknown country	101	104	83	87	87	59	101	104	83	87	87	59	0	0	0	0	0	0	0	0	0	0	0	0
United States	1,470	1,718	1,620	1,424	1,736	1,575	1,470	1,716	1,620	1,423	1,734	1,574	0	2	0	1	2	1	0	0	0	0	0	0
Academic	665	745	767	622	752	623	665	745	767	621	751	623	0	0	0	1	1	0	0	0	0	0	0	0
Business	442	559	492	396	558	597	442	559	492	396	558	597	0	0	0	0	0	0	0	0	0	0	0	0
Federal government	89	88	68	101	87	64	89	88	68	101	87	64	0	0	0	0	0	0	0	0	0	0	0	0
FFRDCs	66	78	61	77	72	46	66	78	61	77	72	46	0	0	0	0	0	0	0	0	0	0	0	0
Nonprofit	49	54	64	40	69	80	49	54	64	40	69	80	0	0	0	0	0	0	0	0	0	0	0	0
State and local government	2	0	2	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	156	193	165	187	198	165	156	191	165	187	197	164	0	2	0	0	1	1	0	0	0	0	0	0
Health sciences	160,412	174,212	171,304	166,134	170,686	157,400	159,970	174,111	171,043	165,670	170,503	157,195	442	101	261	464	183	205	0	0	0	0	0	0
Foreign	79,991	86,447	85,304	83,268	85,706	80,944	79,766	86,396	85,172	83,045	85,621	80,831	225	51	131	223	86	113	0	0	0	0	0	0
Unknown country	1,289	1,298	1,274	1,134	1,198	1,116	1,280	1,298	1,265	1,130	1,196	1,110	8	0	9	4	2	6	0	0	0	0	0	0
United States	79,132	86,467	84,726	81,733	83,782	75,340	78,923	86,417	84,606	81,495	83,687	75,254	209	50	120	237	95	85	0	0	0	0	0	0
Academic	51,965	56,239	55,945	54,849	55,983	50,744	51,835	56,202	55,884	54,695	55,931	50,696	130	38	61	154	52	48	0	0	0	0	0	0
Business	10,005	11,837	11,118	10,301	11,344	10,097	9,995	11,835	11,117	10,294	11,341	10,091	10	2	1	7	3	7	0	0	0	0	0	0
Federal government	3,581	3,783	3,669	3,573	3,434	3,240	3,570	3,783	3,663	3,557	3,427	3,238	11	0	6	17	7	2	0	0	0	0	0	0
FFRDCs	253	223	263	242	265	198	253	223	263	242	264	197	0	0	0	0	0	0	0	0	0	0	0	0
Nonprofit	7,054	7,636	7,726	7,248	6,999	6,217	7,033	7,635	7,693	7,225	6,991	6,204	22	1	33	23	8	13	0	0	0	0	0	0
State and local government	169	168	137	162	136	119	169	167	137	161	136	119	0	1	0	2	0	0	0	0	0	0	0	0
Joint and unknown sectors	6,104	6,581	5,867	5,357	5,621	4,724	6,068	6,573	5,848	5,322	5,597	4,709	36	8	19	35	25	15	0	0	0	0	0	0
Materials science	9,503	10,684	11,007	10,174	10,871	10,058	9,502	10,679	11,006	10,174	10,870	10,054	1	5	1	0	1	4	0	0	0	0	0	0
Foreign	5,926	6,839	7,310	6,930	7,328	6,918	5,925	6,834	7,309	6,930	7,328	6,918	1	5	1	0	0	0	0	0	0	0	0	0
Unknown country	11	12	13	17	14	14	11	12	13	17	14	14	0	0	0	0	0	0	0	0	0	0	0	0
United States	3,566	3,833	3,684	3,226	3,530	3,126	3,566	3,833	3,684	3,226	3,529	3,122	0	0	0	0	1	4	0	0	0	0	0	0
Academic	2,269	2,437	2,450	2,196	2,442	2,147	2,269	2,437	2,450	2,196	2,442	2,145	0	0	0	0	0	3	0	0	0	0	0	0

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	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
FFRDCs	1,882	2,206	2,086	1,975	2,037	1,685	1,881	2,204	2,086	1,975	2,037	1,685	1	2	0	0	0	0	0	0	0	0	0	0
Nonprofit	290	300	303	267	211	177	290	300	303	267	211	177	0	0	0	0	0	0	0	0	0	0	0	0
State and local government	2	1	1	2	0	1	2	1	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	947	1,042	873	752	710	529	946	1,042	870	750	710	528	1	1	2	1	0	1	0	0	0	0	0	0
Psychology	4,680	5,351	5,236	5,557	5,675	5,666	4,622	5,344	5,229	5,534	5,655	5,623	58	7	7	23	20	43	0	0	0	0	0	0
Foreign	1,934	2,086	2,168	2,317	2,346	2,363	1,889	2,082	2,162	2,304	2,331	2,348	45	5	6	13	14	15	0	0	0	0	0	0
Unknown country	11	13	14	24	24	20	11	13	14	23	24	20	0	0	0	1	0	0	0	0	0	0	0	0
United States	2,736	3,252	3,055	3,216	3,305	3,283	2,723	3,249	3,054	3,207	3,299	3,255	13	2	1	10	6	28	0	0	0	0	0	0
Academic	1,712	1,955	1,842	2,075	2,159	2,280	1,699	1,954	1,842	2,065	2,155	2,254	13	1	0	9	5	26	0	0	0	0	0	0
Business	809	1,014	1,008	924	994	845	809	1,014	1,008	924	993	844	0	1	0	0	1	0	0	0	0	0	0	0
Federal government	33	27	26	39	28	29	33	27	26	39	28	29	0	0	0	0	0	0	0	0	0	0	0	0
FFRDCs	2	0	2	1	4	4	2	0	2	1	4	4	0	0	0	0	0	0	0	0	0	0	0	0
Nonprofit	33	52	13	21	20	28	33	52	13	21	20	25	0	0	0	0	0	3	0	0	0	0	0	0
State and local government	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	145	203	163	157	99	97	145	202	163	157	99	97	0	1	0	0	0	0	0	0	0	0	0	0
Social sciences	683	643	498	579	642	607	683	643	498	575	628	597	0	0	0	4	14	10	0	0	0	0	0	0
Foreign	265	258	216	223	271	268	265	258	216	222	258	260	0	0	0	1	13	8	0	0	0	0	0	0
Unknown country	5	4	0	1	1	0	5	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	413	382	282	355	370	339	413	382	282	352	369	337	0	0	0	3	1	2	0	0	0	0	0	0
Academic	325	287	214	276	290	276	325	287	214	273	289	275	0	0	0	3	1	1	0	0	0	0	0	0
Business	24	28	29	35	44	21	24	28	29	35	44	21	0	0	0	0	0	0	0	0	0	0	0	0
Federal government	11	10	3	7	5	10	11	10	3	7	5	10	0	0	0	0	0	0	0	0	0	0	0	0
FFRDCs	1	1	4	2	2	1	1	1	4	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0
Nonprofit	21	29	12	5	7	8	21	29	12	5	7	8	0	0	0	0	0	0	0	0	0	0	0	0
State and local government	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	31	27	21	30	23	23	31	27	21	30	23	23	0	0	0	0	0	1	0	0	0	0	0	0

USPTO = U.S. Patent and Trademark Office; FFRDC = federally funded research and development center.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; PatentsView, USPTO, accessed April 2019; Elsevier, Scopus abstract and citation database, accessed June 2019.