



Employment of Postdoctoral Researchers at Federally Funded R&D Centers Declined in 2013

by Kelly H. Kang¹

As of fall 2013, 21 federally funded research and development centers (FFRDCs) in the United States had postdoctoral researcher (postdoc) programs. These FFRDCs employed 2,613 postdocs, a 6.4% decrease from fall 2012. This finding corresponds with a slight decline in total R&D spending reported by FFRDCs in FY 2012.² Most FFRDCs with a postdoc program were funded by the Department of Energy, whereas most of the FFRDCs without a postdoc program were funded by the Department of Defense.

Characteristics of FFRDCs that Employ Postdocs

FFRDCs in the United States employ postdocs as part of their efforts to help government agencies meet research and analytic needs, and such employment also helps to train the country's next generation of scientists and engineers. In 2013, 40 FFRDCs were listed in the Master Government List of FFRDCs, maintained by the National Science Foundation (NSF), and 21 of these centers employed postdocs (table 1).

Among FFRDCs with a postdoc program, those administered by

universities and colleges employed the largest percentage of postdocs (46.1%), followed by centers administered by industrial firms (28.9%) and those administered by nonprofit organizations (25.0%). The 11 university-administered FFRDCs in this group reported employing a total of 1,204 postdocs in 2013, down 3.5% from 2012. The 6 industry-administered FFRDCs collectively employed 756 postdocs in 2013, down 12.5% from 2012. The 4 nonprofit-administered FFRDCs employed a total of 653 postdocs in 2013, down 4.1% from the previous year.

Characteristics of Postdocs at FFRDCs

Slightly less than one-quarter of all postdocs working at FFRDCs are women (table 2). The share of female postdocs is higher in university-administered centers (24.5%) than it is in industry-administered centers (21.7%) or in nonprofit-administered centers (20.5%). Only 21.2% of foreign postdocs (foreign nationals who hold temporary visas) and 24.6% of U.S. citizen and permanent resident postdocs employed by FFRDCs are women (table 3).

Foreign postdocs account for more than half of all postdocs at FFRDCs (table 2). The shares of foreign postdocs working in university-administered and nonprofit-administered centers (64.1% and 61.1%, respectively) are much higher than the share working in industry-administered centers (38.6%). Among U.S. citizen and permanent resident postdocs employed by FFRDCs, most are white (74.9%), with Asians (14.9%) and Hispanics or Latinos (4.5%) constituting the next-largest groups.

Science and engineering accounted for 95.4% of all research performed by FFRDC postdocs (table 2). Science accounted for the largest share (71.8%) of this research, and the percentage of postdocs conducting research in science was higher at university-administered centers (76.0%) than it was at nonprofit-administered (69.8%) or industry-administered centers (66.7%). The percentage of foreign postdocs conducting research in science was higher than the corresponding percentage of U.S. citizen and permanent resident postdocs (73.0% versus 70.2%, respectively), whereas the reverse was true for engineering (21.8% versus 26.0%, respectively) (table 3).

TABLE 1. Postdocs at federally funded research and development centers, by postdoc program status, FFRDC, administrator, and sponsoring agency: 2012–13

Postdoc program status and FFRDC	Administrator	Sponsoring agency	Postdocs	
			2012	2013
With postdoc program			2,793	2,613
University administered			1,248	1,204
Ames Laboratory	Iowa State U. of Science and Technology	Department of Energy	51	42
Argonne National Laboratory	U. Chicago Argonne, LLC	Department of Energy	301	279
Fermi National Accelerator Laboratory	Fermi Research Alliance, LLC	Department of Energy	54	55
Jet Propulsion Laboratory	California Institute of Technology	National Aeronautics and Space Administration	115	159
Lawrence Berkeley National Laboratory	U. California	Department of Energy	516	475
National Ctr. for Atmospheric Research	University Corp. for Atmospheric Research	National Science Foundation	40	37
National Optical Astronomy Observatory	Association of Universities for Research in Astronomy	National Science Foundation	13	11
National Radio Astronomy Observatory	Associated Universities, Inc.	National Science Foundation	21	21
Princeton Plasma Physics Laboratory	Princeton U.	Department of Energy	18	15
SLAC National Accelerator Laboratory	Leland Stanford, Jr. U.	Department of Energy	44	41
Thomas Jefferson National Accelerator Facility	Jefferson Science Associates, LLC	Department of Energy	75	69
Industry administered			864	756
Frederick National Laboratory for Cancer Research	SAIC-Frederick Inc.	National Institutes of Health	25	18
Idaho National Laboratory	Battelle Energy Alliance, LLC	Department of Energy	10	8
Lawrence Livermore National Laboratory	Lawrence Livermore National Security, LLC	Department of Energy	191	152
Los Alamos National Laboratory	Los Alamos National Security, LLC	Department of Energy	439	397
Sandia National Laboratories	Sandia Corp.	Department of Energy	189	175
Savannah River National Laboratory	Savannah River Nuclear Solutions, LLC	Department of Energy	10	6
Nonprofit administered			681	653
Brookhaven National Laboratory	Brookhaven Science Associates, LLC	Department of Energy	181	151
National Renewable Energy Laboratory	Alliance for Sustainable Energy, LLC	Department of Energy	70	71
Oak Ridge National Laboratory	U. Tennessee-Battelle, LLC	Department of Energy	237	236
Pacific Northwest National Laboratory	Battelle Memorial Institute	Department of Energy	193	195
Without postdoc program				
University administered				
Lincoln Laboratory	Massachusetts Institute of Technology	Department of Defense	0	0
Software Engineering Institute	Carnegie Mellon U.	Department of Defense	0	0
Nonprofit administered				
Aerospace FFRDC	The Aerospace Corp.	Department of Defense	0	0
Arroyo Ctr.	RAND Corp.	Department of Defense	0	0
Ctr. for Advanced Aviation System Development	MITRE Corp.	Department of Transportation	0	0
Ctr. for Communications and Computing	Institute for Defense Analyses	Department of Defense	0	0
Ctr. for Enterprise Modernization	MITRE Corp.	Department of Treasury, Department of Veterans Affairs	0	0
Ctr. for Naval Analyses	The CNA Corp.	Department of Defense	0	0
Ctr. for Nuclear Waste Regulatory Analyses	Southwest Research Institute	Nuclear Waste Regulatory Commission	0	0
Ctrs. for Medicare and Medicaid Services FFRDC	MITRE Corp.	Department of Health and Human Services	0	0
Homeland Security Studies and Analysis Institute	Analytic Services, Inc.	Department of Homeland Security	0	0
Homeland Security Systems Engineering and Development Institute	MITRE Corp.	Department of Homeland Security	0	0
Judiciary Engineering and Modernization Ctr.	MITRE Corp.	U.S. Courts Administrative Office	0	0
National Biodefense Analysis and Countermeasures Ctr.	Battelle National Biodefense Institute	Department of Homeland Security	0	0
National Defense Research Institute	RAND Corp.	Department of Defense	0	0
National Security Engineering Ctr.	MITRE Corp.	Department of Defense	0	0
Project Air Force	RAND Corp.	Department of Defense	0	0
Science and Technology Policy Institute	Institute for Defense Analyses	National Science Foundation	0	0
Studies and Analyses Ctr.	Institute for Defense Analyses	Department of Defense	0	0

FFRDC = federally funded research and development center.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers.

TABLE 2. Characteristics of postdocs at federally funded research and development centers, by administration type: 2013

Characteristic	Total	University administered	Industry administered	Nonprofit administered
All postdocs	2,613	1,204	756	653
Male	2,020	909	592	519
Female	593	295	164	134
U.S. citizens and permanent residents ^a	1,150	432	464	254
Hispanic or Latino	52	10	29	13
Not Hispanic or Latino	1,065	409	419	237
White	861	328	350	183
Asian	171	66	58	47
Black or African American	14	5	6	3
More than one race	14	9	3	2
American Indian or Alaska Native	3	0	1	2
Native Hawaiian or Other Pacific Islander	2	1	1	0
Unknown ethnicity or race	33	13	16	4
Temporary visa holders	1,463	772	292	399
Science	1,875	915	504	456
Physics and astronomy	790	452	214	124
Chemistry	428	180	127	121
Earth, atmospheric, and ocean sciences	210	123	36	51
Biological sciences	209	78	60	71
Computer sciences	78	26	22	30
Mathematical sciences	58	18	27	13
Social sciences	8	0	8	0
Agricultural sciences	2	0	0	2
Psychology	1	1	0	0
Other sciences	91	37	10	44
Engineering	618	214	213	191
Materials and metallurgical engineering	183	57	54	72
Mechanical engineering	109	33	54	22
Chemical engineering	85	34	24	27
Electrical engineering	57	21	21	15
Nuclear engineering	50	6	17	27
Civil engineering	24	11	6	7
Biomedical engineering	19	3	8	8
Aerospace engineering	17	2	12	3
Engineering science and physics	7	6	1	0
Agricultural engineering	4	3	0	1
Industrial and manufacturing engineering	3	1	2	0
Petroleum engineering	1	1	0	0
Mining engineering	0	0	0	0
Other engineering	59	36	14	9
Health fields	17	4	8	5
Multidisciplinary fields	27	17	10	0
Non-science or engineering fields	7	4	2	1
Field of research not known	69	50	19	0

^a Ethnicity and race details are available only for U.S. citizens and permanent residents.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers, 2013.

Data Sources, Limitations, and Availability

For a description of the federal guidelines and definitions governing FFRDCs, please see the “General Notes” section of the Master Government List of FFRDCs at <http://www.nsf.gov/statistics/ffrdclist/>.

Data for postdocs employed by FFRDCs are collected by the Survey of Postdoctorates at FFRDCs. The FFRDCs surveyed were those in existence at the beginning of FY 2013. The survey collects data on the number of postdocs employed by FFRDCs—categorized by citizenship, sex, ethnicity and race, and field of research—as of 1 October of the survey year. It is conducted as part of the Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS), which is sponsored by NSF and the National Institutes of Health.

A postdoc is defined by the GSS as an appointee who holds a PhD or equivalent doctoral degree; whose doctorate was awarded recently, generally within the past 5 years; whose appointment is for a limited term, generally no more than 5 to 7 years; who works under the supervision of a senior researcher; and whose appointment is primarily for the purpose of training in research or through scholarship.

The FFRDC postdoc counts in 2012 and 2013 are not comparable with the counts reported in 2010 and prior years. The Frederick National Laboratory for Cancer Research (FNLRC) revised their postdoc reporting to include only FFRDC contract employees after it was reorganized and renamed from the National Cancer Institute of Frederick in 2011. Consequently, the total number of postdocs reported by the FNLRC dropped from 286 in 2010 to 25 in 2012 and 18 in 2013. All comparisons

TABLE 3. Postdocs at federally funded research and development centers, by citizenship, sex, and field of research: 2013

Sex and field of research	U.S. citizens and permanent residents			U.S. citizens and permanent residents		
	Total	Temporary visa holders	Total	Temporary visa holders	Total	Temporary visa holders
All postdocs	2,613	1,150	1,463	100.0	100.0	100.0
Male	2,020	867	1,153	77.3	75.4	78.8
Female	593	283	310	22.7	24.6	21.2
Science	1,875	807	1,068	71.8	70.2	73.0
Physics and astronomy	790	309	481	30.2	26.9	32.9
Chemistry	428	203	225	16.4	17.7	15.4
Earth, atmospheric, and ocean sciences	210	86	124	8.0	7.5	8.5
Biological sciences	209	108	101	8.0	9.4	6.9
Computer sciences	78	33	45	3.0	2.9	3.1
Mathematical sciences	58	28	30	2.2	2.4	2.1
Health fields	17	9	8	0.7	0.8	0.5
Social sciences	8	5	3	0.3	0.4	0.2
Agricultural sciences	2	1	1	0.1	0.1	0.1
Psychology	1	1	0	0.0	0.1	0.0
Other science	91	33	58	3.5	2.9	4.0
Engineering	618	299	319	23.7	26.0	21.8
Materials and metallurgical engineering	183	65	118	7.0	5.7	8.1
Mechanical engineering	109	57	52	4.2	5.0	3.6
Chemical engineering	85	49	36	3.3	4.3	2.5
Electrical engineering	57	28	29	2.2	2.4	2.0
Nuclear engineering	50	36	14	1.9	3.1	1.0
Civil engineering	24	15	9	0.9	1.3	0.6
Biomedical engineering	19	8	11	0.7	0.7	0.8
Aerospace engineering	17	10	7	0.7	0.9	0.5
Engineering science and physics	7	3	4	0.3	0.3	0.3
Agricultural engineering	4	1	3	0.2	0.1	0.2
Industrial and manufacturing engineering	3	1	2	0.1	0.1	0.1
Petroleum engineering	1	0	1	0.0	0.0	0.1
Mining engineering	0	0	0	0.0	0.0	0.0
Other engineering	59	26	33	2.3	2.3	2.3
Health fields	17	9	8	0.7	0.8	0.5
Multidisciplinary fields	27	12	15	1.0	1.0	1.0
Non-science or engineering fields	7	0	7	0.3	0.0	0.5
Field of research not known	69	23	46	2.6	2.0	3.1

NOTE: Percentage details may not add to total due to rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers, 2013.

of FFRDC postdoc data spanning this period need to account for this difference.

Detailed data from this survey are available at <http://www.nsf.gov/statistics/srvyffrdcpd/>. For more information on the Survey of Postdoctorates at FFRDCs, please contact the author.

Notes

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2. Britt R. 2014. *Federally Funded R&D Centers Report Declines in R&D Spending in FY 2012*. InfoBrief NSF 14-308. Arlington, VA: National Science Foundation, National Center for Science and Engineering Statistics available at <http://www.nsf.gov/statistics/infbrief/nsf14308/>.

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