



FY2021 Nuclear Physics Workforce Survey

Office of Nuclear Physics

This report conveys the results of the October 2021 survey of scientific workforce in the Department of Energy, Nuclear Physics (NP) program. The same procedure as in previous years was used. People were counted in the categories of permanent Ph.D. staff, temporary Ph.D. staff, Ph.D. staff not supported by DOE, DOE-supported graduate students, and graduate students not supported by DOE. Counts of Ph.D.'s awarded were also collected. In all cases, people were asked to self-define whether they were primarily doing experimental or theoretical work. Persons who receive support from the National Science Foundation are not included in this survey.

On October 1, 2021, the survey shows that 2,499 supported and non-supported scientists and students were associated with the program. Of this number DOE supported 852 permanent Ph.D. staff, 391 temporary Ph.D. staff, and 630 graduate students. Not supported directly by DOE but associated with the program were an additional 189 Ph.D. staff and 437 graduate students.

Summaries of the numerical data for the years 2001 through 2021 are provided as well as separate summary data for the national laboratories and universities, and statistics on the Ph.D.'s awarded. Out of the 630 graduate students supported 91 graduate students were awarded Ph.D.'s in 2021.

Brenda May

Results of Nuclear Physics Workforce Surveys

DOE Supported Workforce Data

Workforce Counts on October 1st

| SUMMARY OF LABORATORIES & UNIVERSITIES | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Both Experimental and Theory | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <u>1996</u> | <u>1997</u> | <u>1998</u> | <u>1999</u> | <u>2000</u> | <u>2001</u> | <u>2002</u> | <u>2003</u> | <u>2004</u> | <u>2005</u> | <u>2006</u> | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
| Permanent Staff | 689 | 682 | 689 | 690 | 676 | 683 | 702 | 727 | 746 | 742 | 699 | 724 | 733 | 779 | 871 | 873 | 872 | 813 | 833 | 844 | 839 | 807 | 804 | 884 | 771 | 852 |
| Temporary Staff | 346 | 360 | 380 | 394 | 363 | 362 | 364 | 410 | 403 | 388 | 344 | 341 | 365 | 364 | 423 | 434 | 411 | 381 | 360 | 344 | 365 | 376 | 379 | 404 | 413 | 391 |
| Graduate Students | 423 | 422 | 415 | 404 | 408 | 408 | 442 | 457 | 473 | 509 | 486 | 472 | 493 | 516 | 538 | 550 | 546 | 517 | 518 | 522 | 530 | 539 | 555 | 614 | 574 | 630 |
| TOTAL | 1458 | 1464 | 1484 | 1488 | 1447 | 1453 | 1508 | 1594 | 1622 | 1639 | 1529 | 1537 | 1591 | 1659 | 1832 | 1857 | 1829 | 1711 | 1711 | 1710 | 1734 | 1722 | 1738 | 1902 | 1758 | 1873 |
| Ph.D.s Awarded | 96 | 97 | 100 | 95 | 87 | 67 | 100 | 79 | 66 | 80 | 92 | 69 | 89 | 85 | 90 | 86 | 104 | 117 | 72 | 86 | 102 | 105 | 88 | 108 | 113 | 91 |
| Experimental | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <u>1996</u> | <u>1997</u> | <u>1998</u> | <u>1999</u> | <u>2000</u> | <u>2001</u> | <u>2002</u> | <u>2003</u> | <u>2004</u> | <u>2005</u> | <u>2006</u> | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
| Permanent Staff | 536 | 538 | 547 | 551 | 542 | 536 | 554 | 577 | 586 | 582 | 555 | 557 | 574 | 607 | 690 | 677 | 678 | 632 | 662 | 670 | 672 | 637 | 635 | 700 | 589 | 641 |
| Temporary Staff | 263 | 280 | 299 | 298 | 286 | 287 | 277 | 319 | 308 | 295 | 266 | 256 | 266 | 254 | 311 | 314 | 315 | 292 | 269 | 254 | 280 | 274 | 277 | 305 | 305 | 297 |
| Graduate Students | 321 | 323 | 323 | 319 | 320 | 319 | 338 | 354 | 361 | 394 | 375 | 348 | 364 | 382 | 400 | 403 | 390 | 364 | 385 | 389 | 404 | 398 | 423 | 462 | 429 | 453 |
| TOTAL | 1120 | 1141 | 1169 | 1168 | 1148 | 1142 | 1169 | 1250 | 1255 | 1271 | 1196 | 1161 | 1204 | 1243 | 1401 | 1394 | 1383 | 1288 | 1316 | 1313 | 1356 | 1309 | 1335 | 1467 | 1323 | 1391 |
| Ph.D.s Awarded | 71 | 66 | 67 | 70 | 56 | 48 | 67 | 63 | 45 | 51 | 68 | 48 | 62 | 54 | 63 | 57 | 75 | 75 | 49 | 61 | 67 | 67 | 63 | 86 | 72 | 57 |
| Theory | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <u>1996</u> | <u>1997</u> | <u>1998</u> | <u>1999</u> | <u>2000</u> | <u>2001</u> | <u>2002</u> | <u>2003</u> | <u>2004</u> | <u>2005</u> | <u>2006</u> | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
| Permanent Staff | 153 | 144 | 142 | 139 | 134 | 147 | 148 | 150 | 160 | 160 | 144 | 167 | 159 | 172 | 181 | 196 | 194 | 181 | 171 | 174 | 167 | 170 | 169 | 184 | 182 | 211 |
| Temporary Staff | 83 | 80 | 81 | 96 | 77 | 75 | 87 | 91 | 95 | 93 | 78 | 85 | 99 | 110 | 112 | 120 | 96 | 89 | 91 | 90 | 85 | 102 | 102 | 99 | 108 | 94 |
| Graduate Students | 102 | 99 | 92 | 85 | 88 | 89 | 104 | 103 | 112 | 115 | 111 | 124 | 129 | 134 | 138 | 147 | 156 | 153 | 133 | 133 | 126 | 141 | 132 | 152 | 145 | 177 |
| TOTAL | 338 | 323 | 315 | 320 | 299 | 311 | 339 | 344 | 367 | 368 | 333 | 376 | 387 | 416 | 431 | 463 | 446 | 423 | 395 | 397 | 378 | 413 | 435 | 435 | 435 | 482 |
| Ph.D.s Awarded | 25 | 31 | 33 | 25 | 31 | 19 | 33 | 16 | 21 | 29 | 24 | 21 | 27 | 31 | 27 | 29 | 29 | 42 | 23 | 25 | 35 | 38 | 25 | 22 | 41 | 34 |

Results of Nuclear Physics Workforce Surveys

DOE Supported Workforce Data

Workforce Counts on October 1st

SUMMARY OF UNIVERSITIES

Both Experimental and Theory

| | <u>1996</u> | <u>1997</u> | <u>1998</u> | <u>1999</u> | <u>2000</u> | <u>2001</u> | <u>2002</u> | <u>2003</u> | <u>2004</u> | <u>2005</u> | <u>2006</u> | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Permanent Staff | 368 | 364 | 369 | 363 | 359 | 367 | 364 | 358 | 362 | 363 | 339 | 342 | 346 | 362 | 372 | 395 | 401 | 375 | 389 | 402 | 419 | 394 | 382 | 426 | 375 | 407 |
| Temporary Staff | 212 | 217 | 233 | 231 | 223 | 225 | 227 | 238 | 228 | 217 | 207 | 207 | 215 | 217 | 244 | 252 | 231 | 241 | 232 | 222 | 222 | 240 | 239 | 240 | 255 | 231 |
| Graduate Students | 361 | 359 | 336 | 342 | 355 | 353 | 385 | 380 | 405 | 421 | 389 | 394 | 409 | 431 | 441 | 449 | 462 | 437 | 440 | 455 | 471 | 465 | 478 | 528 | 500 | 556 |
| TOTAL | 941 | 940 | 938 | 936 | 937 | 945 | 976 | 976 | 995 | 1001 | 935 | 943 | 970 | 1010 | 1057 | 1096 | 1094 | 1053 | 1061 | 1079 | 1112 | 1099 | 1099 | 1194 | 1130 | 1194 |
| Ph.D.s Awarded | 86 | 88 | 85 | 95 | 87 | 67 | 100 | 79 | 66 | 80 | 92 | 69 | 89 | 85 | 90 | 86 | 104 | 117 | 72 | 86 | 102 | 105 | 88 | 108 | 113 | 91 |

Experimental

| | <u>1996</u> | <u>1997</u> | <u>1998</u> | <u>1999</u> | <u>2000</u> | <u>2001</u> | <u>2002</u> | <u>2003</u> | <u>2004</u> | <u>2005</u> | <u>2006</u> | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Permanent Staff | 258 | 258 | 263 | 261 | 256 | 255 | 253 | 254 | 255 | 258 | 247 | 239 | 244 | 252 | 264 | 275 | 279 | 256 | 279 | 293 | 309 | 289 | 276 | 311 | 261 | 288 |
| Temporary Staff | 153 | 160 | 175 | 169 | 165 | 170 | 166 | 171 | 169 | 165 | 163 | 159 | 158 | 152 | 176 | 183 | 173 | 182 | 173 | 167 | 173 | 177 | 177 | 184 | 189 | 175 |
| Graduate Students | 264 | 265 | 253 | 264 | 271 | 271 | 284 | 284 | 301 | 314 | 291 | 283 | 294 | 310 | 314 | 320 | 314 | 298 | 315 | 331 | 354 | 342 | 356 | 389 | 373 | 396 |
| TOTAL | 675 | 683 | 691 | 694 | 692 | 696 | 703 | 709 | 725 | 737 | 701 | 681 | 696 | 714 | 754 | 778 | 766 | 736 | 767 | 791 | 836 | 808 | 809 | 884 | 823 | 859 |
| Ph.D.s Awarded | 62 | 60 | 55 | 70 | 56 | 48 | 67 | 63 | 45 | 51 | 68 | 48 | 62 | 54 | 63 | 57 | 75 | 75 | 49 | 61 | 67 | 67 | 67 | 86 | 72 | 57 |

Theory

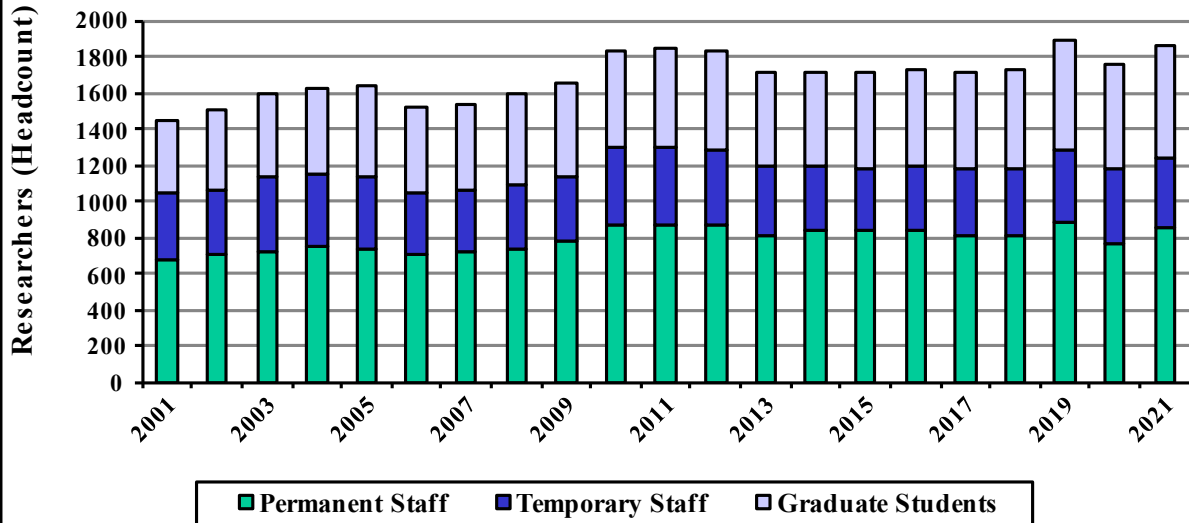
| | <u>1996</u> | <u>1997</u> | <u>1998</u> | <u>1999</u> | <u>2000</u> | <u>2001</u> | <u>2002</u> | <u>2003</u> | <u>2004</u> | <u>2005</u> | <u>2006</u> | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Permanent Staff | 110 | 106 | 106 | 102 | 103 | 112 | 111 | 104 | 107 | 105 | 92 | 103 | 102 | 110 | 108 | 120 | 122 | 119 | 110 | 109 | 110 | 105 | 106 | 115 | 114 | 119 |
| Temporary Staff | 59 | 57 | 58 | 62 | 58 | 55 | 61 | 67 | 59 | 52 | 44 | 48 | 57 | 65 | 68 | 69 | 58 | 59 | 59 | 55 | 49 | 63 | 63 | 56 | 66 | 56 |
| Graduate Students | 97 | 94 | 83 | 78 | 84 | 82 | 101 | 96 | 104 | 107 | 98 | 111 | 115 | 121 | 127 | 129 | 148 | 139 | 125 | 124 | 117 | 123 | 122 | 139 | 127 | 160 |
| TOTAL | 266 | 257 | 247 | 242 | 245 | 249 | 273 | 267 | 270 | 264 | 234 | 262 | 274 | 296 | 303 | 318 | 328 | 317 | 294 | 288 | 276 | 291 | 290 | 310 | 307 | 335 |
| Ph.D.s Awarded | 24 | 28 | 30 | 25 | 31 | 19 | 33 | 16 | 21 | 29 | 24 | 21 | 27 | 31 | 27 | 29 | 29 | 42 | 23 | 25 | 35 | 38 | 25 | 22 | 41 | 34 |



FY2021 Nuclear Physics Workforce Survey

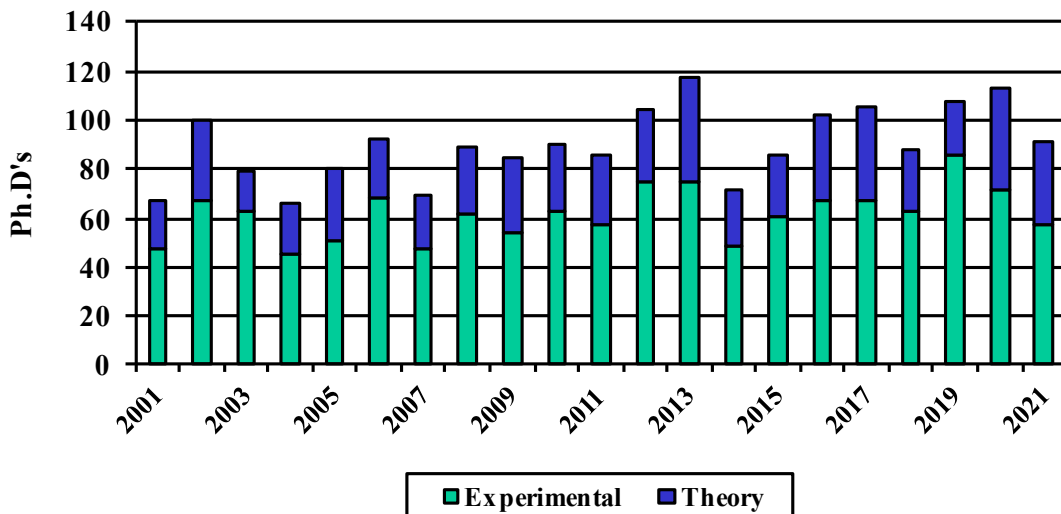
DOE Support Workforce

Laboratories and Universities



FY2021 Nuclear Physics Workforce Survey

Ph.D.s Awarded





FY2021 Nuclear Physics Workforce Survey

Statistics on Ph.D.s Awarded

*Data Collected Since 2004

- **Average Number of Years to Obtain a PhD**
 - **5.7 Years** (Average Based on 1571 data points)
- **% U.S. Citizen 53.8%** (% Based on 1511 data points)
- **Males/Females: 81.3% / 18.7%** (% Based on 1571 data points)
- **Race:** (% Based on 1508 data points)
 - **White: 66.4%** **Asian: 27.4%** **Black or African American: 2.1%**
 - **Hispanic or Latina 3.7%**
 - **Native Hawaiian and Other Pacific Islander 0.2%**
 - **American Indian and Alaska Native 0.2%**
 - **Some Other Race: 0.0%**

FY2021 Nuclear Physics Workforce Survey

Statistics on Ph.D.s Awarded

*Data Collected Since 2004

- **Initial Career Location: USA / Non-USA / Undecided :**
 - **79.7% / 15.0% / 5.3%** (% Based on 1573 data points)
- **Initial Career Path:** (% Based on 1573 data points)
 - **Applied Research/National: 2.4%**
 - **Business or Non-Nuclear: 12.6%**
 - **Medical School/Hospital 1.6%**
 - **NP Basic Research / National Laboratory: 15.1%**
 - **NP Basic Research / University: 33.2%**
 - **NP Teacher / Professor : 4.6%**
 - **Other Teacher / Professor: 5.8%**
 - **Other Basic Research / National Laboratory: 1.7%**
 - **Other Basic Research / University: 7.0%**
 - **Research / Nuclear Industry: 4.6%**
 - **Non-Profit: 0.1%**
 - **Other: 2.7%**
 - **Undecided: 8.6%**