

NATIONAL FOUNDATION FOR AMERICAN POLICY  
NFAP POLICY BRIEF » OCTOBER 2019

IMMIGRANTS AND NOBEL PRIZES: 1901-2019

EXECUTIVE SUMMARY

Immigrants have been awarded 38%, or 36 of 95, of the Nobel Prizes won by Americans in Chemistry, Medicine and Physics since 2000.<sup>1</sup> In 2019, the U.S. winner of the Nobel Prize in Physics (James Peebles) and one of the two American winners of the Nobel Prize in Chemistry (M. Stanley Whittingham) were immigrants to the United States.

This showing by immigrants in 2019 is consistent with recent history and illustrates the contributions of immigrants to America. In 2018, Gérard Mourou, an immigrant from France, won the Nobel Prize in Physics. In 2017, the sole American winner of the Nobel Prize in Chemistry was an immigrant, Joachim Frank, a Columbia University professor born in Germany. Immigrant Rainer Weiss, who was born in Germany and came to the United States as a teenager, was awarded the 2017 Nobel Prize in Physics, sharing it with two other Americans, Kip S. Thorne and Barry C. Barish. In 2016, all 6 American winners of the Nobel Prize in economics and scientific fields were immigrants.

Table 1  
U.S. Nobel Prize Winners in Chemistry, Medicine and Physics: 2000-2019

Category	Immigrant	Native-Born	Percentage of Immigrant Winners
Physics	14	19	42%
Chemistry	12	21	36%
Medicine	10	19	35%
TOTAL	36	59	38%

Source: National Foundation for American Policy, Royal Swedish Academy of Sciences, George Mason University Institute for Immigration Research.

Between 1901 and 2019, immigrants have been awarded 35%, or 105 of 302, of the Nobel Prizes won by Americans in Chemistry, Medicine and Physics. (See Table 2.) Since 1901, immigrants have been awarded 36% of the U.S. Nobel Prizes in Physics, 35% in Chemistry and 34% in Medicine. These numbers could be considered an underestimate, since they do not include Nobel Prize winners who immigrated to America *after* receiving a Nobel Prize, such as Albert Einstein, Enrico Fermi and Niels Bohr. Donna Strickland, who shared a 2018 Nobel Prize in Physics with Gérard Mourou, is also not included as a U.S. recipient, though the Canadian-born professor was an international student in America when she conducted her groundbreaking research and received a Ph.D. from the University of Rochester in New York.

<sup>1</sup> This research updates *Immigrants and Nobel Prizes: 1901-2017*, NFAP Policy Brief, National Foundation for American Policy, 2017. For more background on Nobel Prize winners see <https://www.nobelprize.org/>.

**Table 2**  
**U.S. Nobel Prize Winners in Chemistry, Medicine and Physics: 1901-2019**

Category	Immigrant	Native-Born	Percentage of Immigrant Winners
<b>Physics</b>	39	70	36%
<b>Chemistry</b>	28	52	35%
<b>Medicine</b>	38	75	34%
<b>TOTAL</b>	105	197	35%

Source: National Foundation for American Policy, Royal Swedish Academy of Sciences, George Mason University Institute for Immigration Research. Numbers and percentage for chemistry, medicine and physics prizes.

These achievements by immigrants point to the gains to America of welcoming talent from across the globe. The findings do not mean America should welcome only Nobel Prize winners. Such a policy would be quite restrictive. Moreover, most immigrant Nobel Prize winners enter the United States many years before being awarded this honor. Most people immigrate to another country in their twenties, particularly employment-based immigrants to the United States, who either study in America or come here to work shortly after obtaining a degree abroad. The average age of Nobel Prize winners at the time of the award is 59.5 years, according to economist Mark J. Perry.<sup>2</sup>

Nobel Prize winners represent great individual achievement but also reflect the state of research, openness and scientific advancement within a society. American students, research colleagues and the U.S. economy gain from the work performed by outstanding scientists and researchers, including Nobel Prize winners.

The right immigration laws matter, particularly in determining whether the United States gains from increased globalization and rising educational achievement in the world. The Immigration and Nationality Act of 1965 eliminated the discriminatory national origin quotas and opened the door to Asian immigrants, while the Immigration Act of 1990 increased employment-based green card numbers. Those two pieces of legislation have been important factors in drawing international students to the country and enhancing the ability of America to assimilate talented individuals into our culture and economy. The rise in immigrant Nobel Prize winners reflects an overall increase in the reputation and capability of American institutions and researchers post-1960, and a greater openness to immigration has helped make the United States the leading global destination for research in many different science and technology fields, including computers, cancer research and others.

<sup>2</sup> Mark J. Perry, "Looking back at the remarkable history of the Nobel Prize from 1901-2016 using maps, charts and tables," Carpe Diem, October 13, 2016.

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Sir J. Fraser Stoddart, winner of the Nobel Prize in Chemistry in 2016 and an immigrant from the United Kingdom, noted that “his research group at Northwestern University has students and scientists from a dozen different countries.” Stoddart believes scientific research will remain strong in America “as long as we don’t enter an era where we turn our back on immigration.”

Among the key findings in this report:

- One can see the increasing influence and importance of immigrants on science in America over the past half century. Between 1901 and 1959, immigrants won 21 Nobel Prizes in Chemistry, Medicine and Physics but won 84 prizes in these fields – *four times as many* – between 1960 and 2019.
- Between 1901 and 1959, only one immigrant to the United States (William Francis GIAUQUE) won the Nobel Prize in Chemistry, while between 1960 and 2019, 27 immigrants won the Nobel Prize for Chemistry.
- From 1901 to 1959, 9 immigrants to the United States won the Nobel Prize for (Physiology or) Medicine, but 29 immigrants were awarded the Nobel Prize for Medicine from 1960 to 2019.
- In Physics, 11 immigrants won the Nobel Prize from 1901 to 1959, while 28 immigrants won the Nobel Prize for Physics between 1960 and 2019.

The achievements of immigrants in the form of Nobel Prizes, successful businesses and contributions in other fields are a testament to the American Dream. Remaining open to immigration will allow America to reap the most benefits of scientific and technological innovation. When one asks successful entrepreneurs and scientists conducting groundbreaking research whether they favor liberalized policies on immigration, the answer they invariably give is that more immigration and greater openness to international students, researchers and immigrants across the skill spectrum will help America to grow and prosper.

## OVERVIEW

Immigrants have been awarded 38%, or 36 of 95, of the Nobel Prizes won by Americans in Chemistry, Medicine and Physics since 2000. Approximately 14% of the U.S. population today is foreign-born.<sup>3</sup> In 2019, two of the 5 American winners in Chemistry, Medicine and Physics were immigrants: M. Stanley Whittingham won the Nobel Prize in Chemistry, while the U.S. winner of the Nobel Prize in Physics was James Peebles.<sup>4</sup>

In 2017, two of the 7 American winners in Chemistry, Medicine and Physics were immigrants: Joachim Frank, a Columbia University professor born in Germany, was the sole American winner of the Nobel Prize in Chemistry and German-born immigrant Rainer Weiss shared the 2017 Nobel Prize in Physics with fellow Americans Kip S. Thorne and Barry C. Barish. In 2016, all 6 Americans who won the Nobel Prize in economics and scientific fields were immigrants: Sir J. Fraser Stoddart (Chemistry), F. Duncan M. Haldane (Physics), David Thouless (Physics), Michael Kosterlitz (Physics), Oliver Hart (Economics) and Bengt Holmström (Economics).

One can see the increasing influence and importance of immigrants on science in America reflected in the Nobel Prize winners. Between 1901 and 1959, immigrants won 21 Nobel Prizes in Chemistry, Medicine and Physics but won 84 prizes in these fields – *four times as many* – between 1960 and 2019. The pre-1960 immigrant (and U.S.) Nobel Prize total would have been lower if not for the many Jewish scientists who overcame significant restrictions against immigration in the 1930s and fled to the United States to escape European fascism.

The difference between the two periods over approximately the same number of years illustrates the importance of changes in U.S. immigration law, particularly the Immigration and Nationality Act of 1965 ending the restrictive “national origins” quotas that prevented people from much of the world, including Asia, from immigrating to the United States. The Immigration Act of 1990 increased immigration quotas for employment-based green cards. Becoming a more open place for international students from all over the world, and the overall increase in the reputation and capability of American institutions and researchers post-1960, combined to make the United States the leading global destination for research in many science and technology fields.

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<sup>3</sup> <https://www.pewresearch.org/fact-tank/2019/01/30/immigrant-share-in-u-s-nears-record-high-but-remains-below-that-of-many-other-countries/>.

<sup>4</sup> Although John B. Goodenough, the other American winner of the Nobel Prize in Chemistry, was born in Germany, NFAP research determined Goodenough is not an immigrant, since his father was native-born.

## CHEMISTRY

In 2019, one of the two U.S. winners of the Nobel Prize in Chemistry was an immigrant – M. Stanley Whittingham, who was born in the United Kingdom, is a professor at Binghamton University, State University of New York.

“Lithium-ion batteries have revolutionized our lives and are used in everything from mobile phones to laptops and electric vehicles,” according to the [Royal Swedish Academy of Sciences](#). “Through their work, this year’s Chemistry Laureates have laid the foundation of a wireless, fossil fuel-free society.”

The Royal Swedish Academy of Sciences [continued](#), “In the early 1970s, Stanley Whittingham, awarded this year’s Chemistry Prize, used lithium’s enormous drive to release its outer electron when he developed the first functional lithium battery. 2019 Chemistry Laureate John Goodenough doubled the lithium battery’s potential, creating the right conditions for a vastly more powerful and useful battery.”<sup>5</sup>

The American winner of the 2017 Nobel Prize in Chemistry was Joachim Frank, who was born in Germany in 1940. Frank is a Professor of Biochemistry and Molecular Biophysics and of Biological Sciences at Columbia University in New York. He shared the award with Jacques Dubochet, an Honorary Professor of Biophysics at the University of Lausanne, Switzerland, and Richard Henderson, Programme Leader, MRC Laboratory of Molecular Biology, Cambridge, United Kingdom.

“The Nobel Prize in Chemistry 2017 is awarded to Jacques Dubochet, Joachim Frank and Richard Henderson for the development of cryo-electron microscopy, which both simplifies and improves the imaging of biomolecules,” announced the Royal Swedish Academy of Sciences. “This method has moved biochemistry into a new era.”<sup>6</sup>

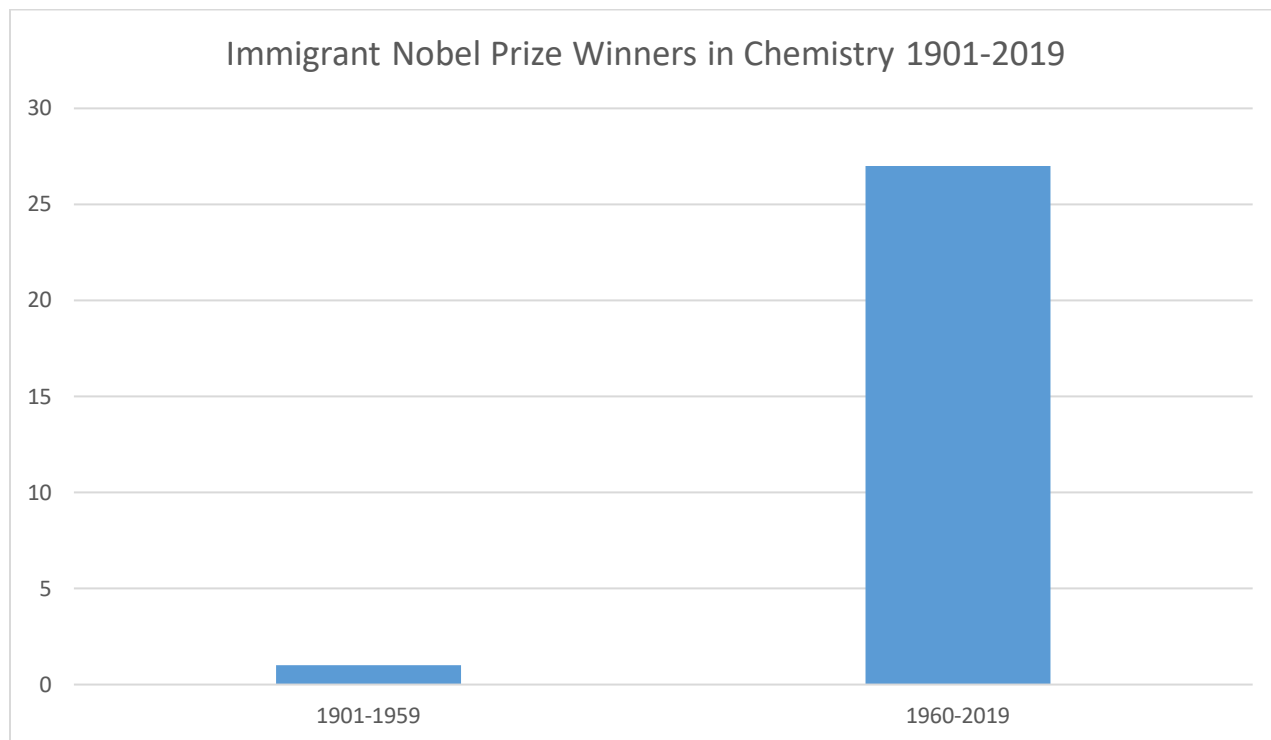
Scientists believe the advances in microscopes will open up additional opportunities for discovery. “Electron microscopes were long believed to only be suitable for imaging dead matter, because the powerful electron beam destroys biological material. But in 1990, Richard Henderson succeeded in using an electron microscope to generate a three-dimensional image of a protein at atomic resolution. This breakthrough proved the technology’s potential,” according to Royal Swedish Academy of Sciences.<sup>7</sup>

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<sup>5</sup> Royal Swedish Academy of Sciences.

<sup>6</sup> Press Release: The Nobel Prize in Chemistry 2017, The Royal Swedish Academy of Sciences, October 4, 2017.

<sup>7</sup> Ibid.

**Figure 1**

Source: National Foundation for American Policy, Royal Swedish Academy of Sciences, George Mason University Institute for Immigration Research.

“Joachim Frank made the technology generally applicable,” the Academy noted. “Between 1975 and 1986 he developed an image processing method in which the electron microscope’s fuzzy two-dimensional images are analysed and merged to reveal a sharp three-dimensional structure.”<sup>8</sup> Jacques Dubochet carried these advances further after he “added water to electron microscopy.”<sup>9</sup>

Sir J. Fraser Stoddart was awarded the Nobel Prize in Chemistry in 2016. He was born and educated primarily in the United Kingdom and came to UCLA to teach nearly 20 years before winning the Nobel Prize. He currently is a professor of chemistry at Northwestern University in Illinois. “The laureate told *The Guardian* that his research group at Northwestern University has students and scientists from a dozen different countries and that bringing in

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

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international talent raises the bar overall.”<sup>10</sup> Stoddart said, "I think the resounding message that should go out all around the world is that science is global." He “credited American openness with bringing top scientists to the country” and told *The Hill* that that the American scientific establishment will only remain strong "as long as we don't enter an era where we turn our back on immigration.”<sup>11</sup>

Between 1901 and 1959, only one immigrant to the United States (William Francis GIAUQUE) won the Nobel Prize in Chemistry, while between 1960 and 2019, 27 immigrants won the Nobel Prize for Chemistry.

**Table 3**  
**Immigrant Nobel Prize Winners in Chemistry: 2000-2019**

YEAR	WINNER	PLACE OF BIRTH	U.S. AFFILIATION
2000	Alan G. MacDiarmid	New Zealand	University of Pennsylvania
2002	Kurt Wüthrich	Switzerland	The Scripps Research Institute
2008	Osamu Shimomura	Japan	Marine Biological Laboratory, Boston University Medical School
2010	Ei-ichi Negishi	China	Purdue University
2011	Dan Shechtman	Palestine	Iowa State
2013	Martin Karplus	Austria	Harvard University
2013	Michael Levitt	South Africa	Stanford University School of Medicine
2013	Arieh Warshel	Israel	University of Southern California
2015	Aziz Sancar	Turkey	University of North Carolina School of Medicine
2016	Sir J. Fraser Stoddart	UK	Northwestern University
2017	Joachim Frank	Germany	Columbia University
2019	M. Stanley Whittingham	UK	Binghamton University, State University of New York

Source: National Foundation for American Policy. Royal Swedish Academy of Sciences, George Mason University Institute for Immigration Research.

<sup>10</sup> Zhai Yun Tan, “Why Nobel-Winning Scientists Are Talking About Immigration Policy,” *Christian Science Monitor*, October 11, 2016.

<sup>11</sup> Rafael Bernal, “Amid debate, all 2016 American Nobel laureates are immigrants,” *The Hill*, October 10, 2016.

*Immigrants and Nobel Prizes: 1901-2019***MEDICINE**

The most recent U.S. immigrant winner of the Nobel Prize in Medicine was William C. Campbell, who was born in Ireland and is a professor at Drew University in New Jersey. He won the award in 2015 with Satoshi Ōmura of Japan and Youyou Tu of China.

“William C. Campbell and Satoshi Ōmura discovered a new drug, Avermectin, the derivatives of which have radically lowered the incidence of River Blindness and Lymphatic Filariasis, as well as showing efficacy against an expanding number of other parasitic diseases,” according to the Royal Swedish Academy of Sciences. “Youyou Tu discovered Artemisinin, a drug that has significantly reduced the mortality rates for patients suffering from Malaria. These two discoveries have provided humankind with powerful new means to combat these debilitating diseases that affect hundreds of millions of people annually. The consequences in terms of improved human health and reduced suffering are immeasurable.”<sup>12</sup>

From 1901 to 1959, 9 immigrants to the United States won the Nobel Prize for Medicine, but 29 immigrants were awarded the Nobel Prize for Medicine from 1960 to 2019.

**Table 4**  
**Immigrant Nobel Prize Winners in Medicine: 2000-2019**

<b>YEAR</b>	<b>WINNER</b>	<b>PLACE OF BIRTH</b>	<b>U.S. AFFILIATION</b>
<b>2000</b>	Eric R. Kandel	Austria	Columbia University
<b>2002</b>	Sydney Brenner	South Africa	The Molecular Sciences Institute
<b>2007</b>	Mario R. Capecchi	Italy	University of Utah, Howard Hughes Medical Institute
<b>2007</b>	Oliver Smithies	United Kingdom	Univ. of North Carolina Chapel Hill
<b>2009</b>	Elizabeth H. Blackburn	Australia	University of California, San Francisco
<b>2009</b>	Jack W. Szostak	United Kingdom	Harvard Medical School
<b>2011</b>	Ralph M. Steinman	Canada	Rockefeller University
<b>2012</b>	Shinya Yamanaka	Japan	Gladstone Institutes
<b>2013</b>	Thomas Südhof	Germany	Stanford University
<b>2015</b>	William C. Campbell	Ireland	Drew University

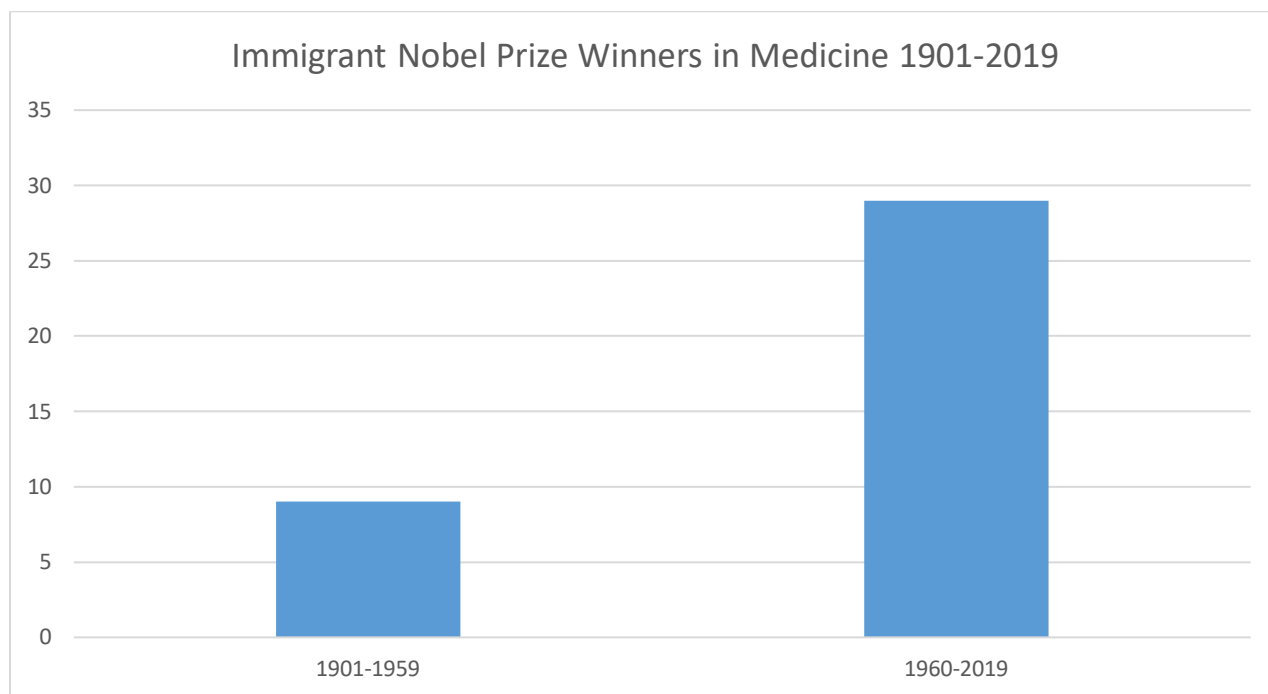
Source: Royal Swedish Academy of Sciences, National Foundation for American Policy, George Mason University Institute for Immigration Research.

<sup>12</sup> Press Release: The Nobel Prize in Physiology or Medicine 2015, The Royal Swedish Academy of Sciences, October 5, 2015.



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Elizabeth Blackburn, born in Australia, shared the 2009 Nobel Prize for Medicine with Jack Szostak (Harvard Medical School), a British-born immigrant to the U.S., and American-born Carol Greider (Johns Hopkins University School of Medicine). Greider was Elizabeth Blackburn's student in 1985 when they "published a paper announcing the discovery of the enzyme telomerase."<sup>13</sup> Blackburn is a professor of Biology and Physiology at the University of California San Francisco (UCSF). She came to America in 1978, more than 30 years before she won the Nobel Prize, to teach at the University of California Berkeley, before joining the faculty at UCSF in 1990.<sup>14</sup>

**Figure 2**

Source: National Foundation for American Policy, Royal Swedish Academy of Sciences, George Mason University Institute for Immigration Research.

<sup>13</sup> Goutam Naik, "U.S. Cell-Aging Researchers Awarded Nobel," *The Wall Street Journal*, October 6, 2009, A5.

<sup>14</sup> Dr. Elizabeth Blackburn, Blackburn Lab, University of California San Francisco.

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Dr. Blackburn and Dr. Szostak were able to establish that “repeated DNA sequences make up the tips of each chromosome.”<sup>15</sup> Since the enzyme serves an important function in the health of cells, the discovery has helped launch research into cancer, cardiovascular disease and other age-related illnesses.<sup>16</sup> In naming Elizabeth Blackburn “Scientist of the Year” in 2007, *Discover Magazine* wrote, “Imagine that this scientist kept a to-do list: On it would be a cure for cancer and, further down, understanding the diseases associated with aging. Elizabeth Blackburn is the 59-year-old Tasmanian-born scientist responsible for launching one of the hottest fields in the life sciences, the study of telomeres. These tiny strips of DNA cap the ends of chromosomes, and her research promises to yield potent therapeutics for many of the scourges that plague humanity.”<sup>17</sup>

## PHYSICS

James Peebles, who was born in Canada and is a professor at Princeton University, was awarded the 2019 Nobel Prize in Physics. “This year’s Nobel Prize in Physics rewards new understanding of the universe’s structure and history, and the first discovery of a planet orbiting a solar-type star outside our solar system,” reported the Royal Swedish Academy of Sciences in announcing the award. “James Peebles’ insights into physical cosmology have enriched the entire field of research and laid a foundation for the transformation of cosmology over the last fifty years, from speculation to science. His theoretical framework, developed since the mid-1960s, is the basis of our contemporary ideas about the universe.”

Peebles has helped advance our understanding of space. “Barely 400,000 years after the Big Bang, the universe became transparent and light rays were able to travel through space,” noted the Royal Swedish Academy of Sciences. “Even today, this ancient radiation is all around us and, coded into it, many of the universe’s secrets are hiding. Using his theoretical tools and calculations, James Peebles was able to interpret these traces from the infancy of the universe and discover new physical processes. The results showed us a universe in which just five percent of its content is known, the matter which constitutes stars, planets, trees – and us. The rest, 95 percent, is unknown dark matter and dark energy.”<sup>18</sup>

In 2018, Gérard Mourou won the Nobel Prize in Physics, sharing it with Arthur Ashkin and Donna Strickland. Mourou earned a Ph.D. at the Université Pierre-et-Marie-Curie in Paris, and “later moved to the United States and became

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<sup>15</sup> Ibid.

<sup>16</sup> Ibid. See also Stuart Anderson, *Immigration* (Greenwood, 2010).

<sup>17</sup> Linda Marsa, “Scientist of the Year Notable: Elizabeth Blackburn,” *Discover Magazine*, December 6, 2007.

<sup>18</sup> <https://www.nobelprize.org/prizes/physics/2019/press-release/>.

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a professor at the University of Rochester, where he did his Nobel Prize awarded work along with Donna Strickland. He subsequently worked at the University of Michigan,” with which he remained affiliated at the time of the award.<sup>19</sup>

“Gérard Mourou and Donna Strickland paved the way towards the shortest and most intense laser pulses ever created by mankind,” according to the Royal Swedish Academy of Sciences.<sup>20</sup> “Their revolutionary article was published in 1985 and was the foundation of Strickland’s doctoral thesis.” Strickland was an international student in the U.S. at the time of her research.

Strickland and Mourou developed a new approach by creating ultrashort high-intensity laser pulses. “Strickland and Mourou’s newly invented technique, called chirped pulse amplification, CPA, soon became standard for subsequent high-intensity lasers,” noted the Royal Swedish Academy of Sciences in its award announcement. “Its uses include the millions of corrective eye surgeries that are conducted every year using the sharpest of laser beams. The innumerable areas of application have not yet been completely explored. However, even now these celebrated inventions allow us to rummage around in the microworld in the best spirit of Alfred Nobel – for the greatest benefit to humankind.”<sup>21</sup>

Dr. Rainer Weiss, who was awarded a Nobel Prize in Physics in 2017, came to America as a teenager, many years before he began producing Nobel Prize-caliber research. “Dr. Weiss was born in Berlin in 1932 and came to New York by way of Czechoslovakia in 1939,” reported the *New York Times*. “As a high school student, he became an expert in building high-quality sound systems and entered M.I.T. intending to major in electrical engineering. He inadvertently dropped out when he went to Illinois to pursue a failing romance. After coming back, he went to work in a physics lab and wound up with a Ph.D. from M.I.T.”<sup>22</sup>

The winners received the 2017 Nobel Prize in Physics for their “decisive contributions to the LIGO detector and the observation of gravitational waves.”<sup>23</sup>

“On 14 September 2015, the universe’s gravitational waves were observed for the very first time,” explained the Royal Swedish Academy of Sciences. “Gravitational waves are an entirely new way of observing the most violent events in space and testing the limits of our knowledge.”<sup>24</sup>

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<sup>19</sup> <https://www.nobelprize.org/prizes/physics/2018/mourou/facts/>.

<sup>20</sup> <https://www.nobelprize.org/prizes/physics/2018/press-release/>.

<sup>21</sup> Ibid.

<sup>22</sup> Dennis Overbye, “2017 Nobel Prize in Physics Awarded to LIGO Black Hole Researchers,” *New York Times*, October 3, 2017.

<sup>23</sup> Press Release: The Nobel Prize in Physics 2017, The Royal Swedish Academy of Sciences, October 3, 2017.

<sup>24</sup> Ibid.

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The Academy detailed the efforts of the 2017 Physics prize winners: “In the mid-1970s, Rainer Weiss had already analysed possible sources of background noise that would disturb measurements, and had also designed a detector, a laser-based interferometer, which would overcome this noise. Early on, both Kip Thorne and Rainer Weiss were firmly convinced that gravitational waves could be detected and bring about a revolution in our knowledge of the universe . . . gravitational waves are direct testimony to disruptions in spacetime itself. This is something completely new and different, opening up unseen worlds. A wealth of discoveries awaits those who succeed in capturing the waves and interpreting their message.”<sup>25</sup>

**Table 5**  
**Immigrant Nobel Prize Winners in Physics: 2000-2019**

<b>YEAR</b>	<b>WINNER</b>	<b>PLACE OF BIRTH</b>	<b>U.S. AFFILIATION</b>
<b>2000</b>	Herbert Kroemer	Germany	University of California, Santa Barbara
<b>2001</b>	Wolfgang Ketterle	West Germany	Massachusetts Institute of Technology (MIT)
<b>2002</b>	Riccardo Giacconi	Italy	Associated Universities Inc.
<b>2003</b>	Anthony J. Leggett	United Kingdom	University of Illinois, Urbana
<b>2003</b>	Alexei A. Abrikosov	USSR/Russia	Argonne National Laboratory
<b>2008</b>	Yoichiro Nambu	Japan	University of Chicago
<b>2009</b>	Willard S. Boyle	Canada	Bell Laboratories
<b>2014</b>	Shuji Nakamura	Japan	University of California, Santa Barbara
<b>2016</b>	David J. Thouless	United Kingdom	University of Washington
<b>2016</b>	F. Duncan M. Haldane	United Kingdom	Princeton University
<b>2016</b>	J. Michael Kosterlitz	United Kingdom	Brown University
<b>2017</b>	Rainer Weiss	Germany	Massachusetts Institute of Technology (MIT)
<b>2018</b>	G�rard Mourou	France	University of Michigan
<b>2019</b>	James Peebles	Canada	Princeton University

Source: National Foundation for American Policy, Royal Swedish Academy of Sciences, George Mason University Institute for Immigration Research.

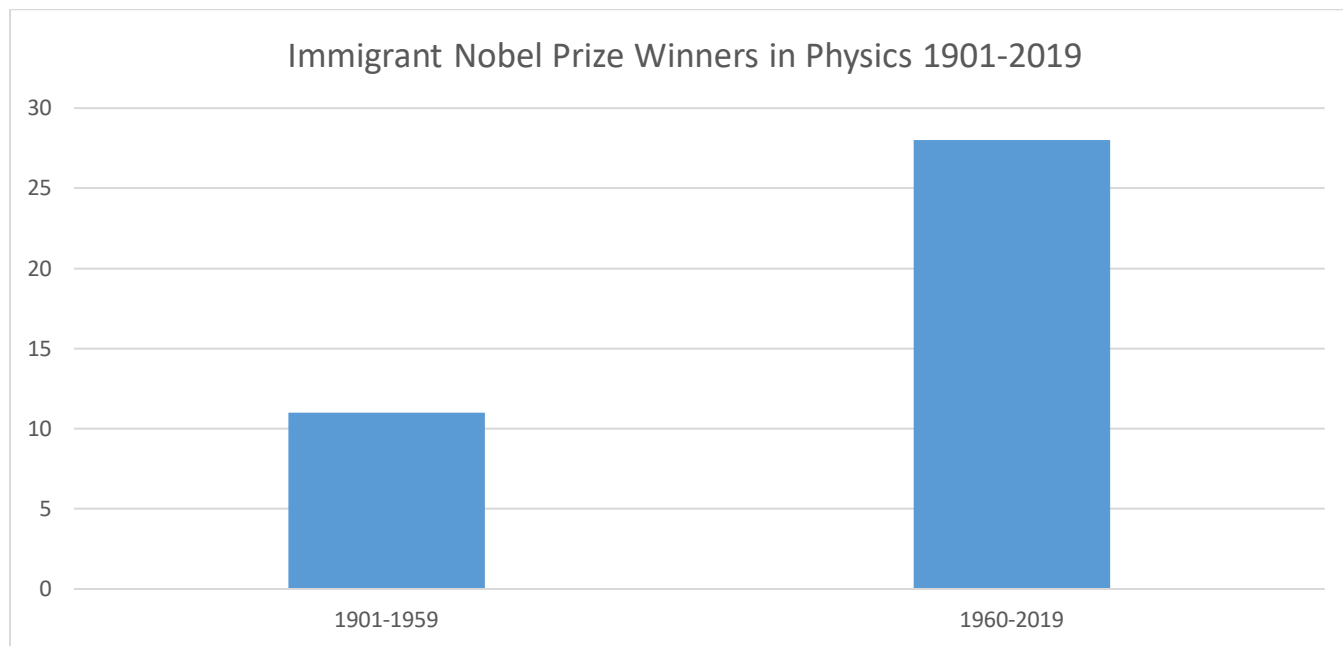
<sup>25</sup> Ibid.

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Three immigrants born in the United Kingdom shared the Nobel Prize for Physics in 2016 – David J. Thouless (University of Washington), F. Duncan M. Haldane (Princeton University) and J. Michael Kosterlitz (Brown University). In 2016, the Royal Swedish Academy of Sciences wrote of the winners: “They have used advanced mathematical methods to study unusual phases, or states, of matter, such as superconductors, superfluids or thin magnetic films. Thanks to their pioneering work, the hunt is now on for new and exotic phases of matter. Many people are hopeful of future applications in both materials science and electronics.”<sup>26</sup>

In Physics, 11 immigrants won the Nobel Prize from 1901 to 1959, while 28 immigrants won the Nobel Prize for Physics between 1960 and 2019.

**Figure 3**



Source: National Foundation for American Policy, Royal Swedish Academy of Sciences, George Mason University Institute for Immigration Research.

<sup>26</sup> Press Release: The Nobel Prize in Physics 2016, The Royal Swedish Academy of Sciences, October 5, 2016.

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A number of the earliest U.S. winners of the Nobel Prize in Physics were Jewish scientists who fled Europe after the rise of Hitler and Mussolini. These scientists were crucial in America becoming the first nation to develop the atomic bomb. In 1954 the Atomic Energy Act established an award to recognize scientific achievements in the field of atomic energy. The first winner of the award was the Italian-born Enrico Fermi. After his death, the award became known as the Enrico Fermi Award and 5 of the first 8 winners were immigrants. Four of the nuclear scientists who came to the United States from Europe in the 1930s and later received a Nobel Prize for physics were Felix Bloch (1952), born in Switzerland, Emilio Segre (1959), born in Italy, Maria Mayer (1963), born in Poland, and Eugene Wigner (1963), born in Hungary.

## **CONCLUSION**

The achievements of so many immigrants as seen in the form of Nobel Prizes, successful businesses, and contributions in sports, the arts and many other fields are a testament to the American Dream. Remaining open to immigration will allow America to reap the most benefits of scientific and technological innovation. When one asks successful entrepreneurs and scientists conducting groundbreaking research whether they favor liberalized policies on immigration, the answer they invariably give is that more immigration and greater openness to international students, researchers and immigrants across the skill spectrum will help America to grow and prosper.

## ABOUT THE NATIONAL FOUNDATION FOR AMERICAN POLICY

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