

[Quick Links](#)

Research Areas

- [Biological Sciences](#)
- [Computer & Information Science & Engineering](#)
- [Education and Human Resources](#)
- [Engineering](#)
- [Environmental Research & Education](#)
- [Geosciences](#)
- [International & Integrative Activities](#)
- [Mathematical & Physical Sciences](#)
- [Social, Behavioral & Economic Sciences](#)

Learning Resources

- [Film, TV, Exhibits & More!](#)
- [Slideshows & Photo Galleries](#)
- [Classroom Resources](#)
- [Funding for Research on Learning in Formal & Informal Settings](#)

Funding & Awards



National Science Foundation
WHERE DISCOVERIES BEGIN

Funding Info

- [Search Funding Opportunities](#)
- [Browse Funding Opportunities A-Z](#)
- [Recent Funding Opportunities](#)
- [How to Prepare a Funding Proposal](#)
- [Grant Proposal Guide](#)
- [Submit a Proposal to FastLane](#)

Award Info

- [Managing Awards](#)
- [Award & Administration Guide](#)
- [Search Awards](#)
- [Award Statistics \(Budget Internet Info System\)](#)

News & Discoveries

- [Recent News](#)
- [Recent Discoveries](#)
- [Multimedia Gallery](#)
- [Special Reports](#)

Contact Us

- [Staff Directory](#)
- [Organization List](#)
- [Visit NSF](#)
- [Work at NSF](#)
- [Do Business with NSF](#)
- [Press](#)

- [Inspector General Hotline](#)
- [How Do I...?](#)

The National Science Foundation

4201 Wilson Boulevard,
Arlington,
Virginia 22230, USA

Tel: (703) 292-5111
FIRS: (800) 877-8339
TDD: (800) 281-8749

- [Home](#)
- [Funding](#)
 - [Search Funding Opportunities](#)
 - [Browse Opportunities A-Z](#)
 - [Recent Opportunities](#)
 - [Due Dates](#)
 - [Preparing Proposals](#)
 - [Policies & Procedures](#)
 - [Merit Review](#)
 - [Interdisciplinary Research](#)
 - [Transformative Research](#)
 - [About Funding](#)
- [Awards](#)
 - [About Awards](#)
 - [Managing Awards](#)
 - [Policies & Procedures](#)
 - [Award Conditions](#)
 - [Search Awards](#)
 - [Presidential & Honorary Awards](#)
 - [Award Statistics \(Budget Internet Info System\)](#)
- [Discoveries](#)
 - [Discoveries Home](#)
 - [Arctic & Antarctic](#)
 - [Astronomy & Space](#)
 - [Biology](#)
 - [Chemistry & Materials](#)
 - [Computing](#)
 - [Earth & Environmental Science](#)

- [Education](#)
- [Engineering](#)
- [Mathematics](#)
- [Nanoscience](#)
- [People & Society](#)
- [Physics](#)
- [Search Discoveries](#)
- [About Discoveries](#)
- [News](#)
 - [News Home](#)
 - [For News Media](#)
 - [Multimedia Gallery](#)
 - [Special Reports](#)
 - [News from the Field](#)
 - [Research Overviews](#)
 - [Speeches & Lectures](#)
 - [NSF Current Newsletter](#)
 - [NSF-Wide Investments](#)
 - [News Archive](#)
 - [Search News](#)
- [Publications](#)
 - [Publications Home](#)
 - [Search Publications](#)
 - [Obtaining Publications](#)
- [Statistics](#)
 - [NCSES Home](#)
 - [NCSES Data](#)
 - [NCSES Publications](#)
 - [NCSES Surveys](#)
 - [NCSES Topics](#)
 - [Search NCSES](#)
 - [About NCSES](#)
- [About NSF](#)
 - [About NSF](#)
 - [History](#)
 - [Visit NSF](#)
 - [Contact NSF](#)
 - [Staff Directory](#)
 - [Organization List](#)
 - [Career Opportunities](#)
 - [Contracting Opportunities](#)
 - [NSF & Congress](#)
 - [Budget](#)
 - [Performance Assessment Info](#)

- [Partners](#)
- [Transparency & Accountability](#)
- [Broadening Participation/Diversity](#)
- [Office of Diversity & Inclusion](#)
- [Fastlane](#)

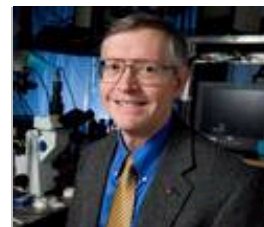
[News](#)



- [News](#)
- [News From the Field](#)
- [For the News Media](#)
- [Special Reports](#)
- [Research Overviews](#)
- [NSF-Wide](#)
- [Investments](#)
- [Speeches & Lectures](#)
- [NSF Current](#)
- [Newsletter](#)
- [Multimedia Gallery](#)
- [News Archive](#)
- News by Research Area**
- [Arctic & Antarctic](#)
- [Astronomy & Space](#)
- [Biology](#)
- [Chemistry & Materials](#)
- [Computing](#)
- [Earth & Environment](#)
- [Education](#)
- [Engineering](#)
- [Mathematics](#)
- [Nanoscience](#)
- [People & Society](#)
- [Physics](#)

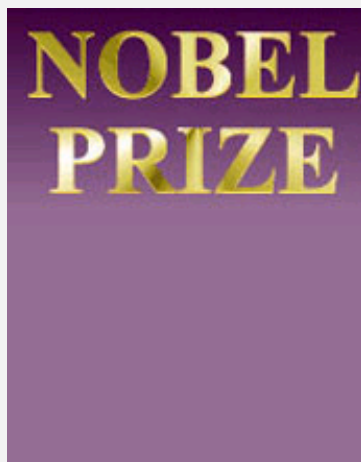
Email  Print 

Press Release 14-138
2014 Nobel Laureates in Chemistry and Economics supported by the National Science Foundation



W.E. (William Esco) Moerner, one of three winners of the 2014 Nobel Prize in Chemistry. [Credit and Larger Version](#)

Innovative work by NSF-supported scientists recognized by Nobel committee



2014 Nobel Prize winners reflect positively on NSF's commitment to fundamental research.

[Credit and Larger Version](#)



Jean Tirole, winner of the 2014 Nobel Prize in Economics. [Credit and Larger Version](#)

October 16, 2014

Two scientists whose work was supported by the National Science Foundation (NSF) were among the 13 Nobel Prize winners announced earlier this month.

During the last five years, 13 awardees have been supported by NSF and 214 overall since the foundation was established in 1950. For a full list of NSF-funded Nobel

laureates, visit the website: [Nobel Prizes, the NSF Connection](#).

"NSF is pleased to have supported scientists whose innovative work has been recognized by the Nobel committee," said NSF Director France Córdoba. "I'd like to congratulate all the winners. Their selection for this important prize underscores the importance of their research. Those whom NSF nurtured along their career paths reflect the diligence and commitment the NSF community takes in evaluating the research proposals of young scientists."

Nobel Prize in Chemistry: W. E. Moerner

W.E. (William Esco) Moerner, the Harry S. Mosher Professor of Chemistry at Stanford University, was awarded the Nobel Prize in Chemistry "for having bypassed a presumed scientific limitation stipulating that an optical microscope can never yield a resolution better than 0.2 micrometers."

Moerner shared the recognition with Eric Betzig of the Howard Hughes Medical Institute and Stefan W. Hell of the Max Planck Institute for Biophysical Chemistry in Germany.

Optical microscopy was limited by the assumption that it couldn't obtain a better resolution than half the wavelength of the light being used in the microscope. Moerner, Betzig and Hell circumvented that through the use of fluorescent molecules, which made it possible for optical microscopes to operate at the nanoscale and to visualize individual molecules moving within cells.

This Nobel Prize in Chemistry recognizes two techniques. One enabled a method known as stimulated emission depletion (STED) microscopy, developed by Hell.

Two laser beams are used; one stimulates fluorescent molecules to glow, another cancels out all fluorescence except for that in a nanometer-sized volume. Scanning over the sample, nanometer-by-nanometer, yields images with high resolutions.

Betzig and Moerner, working separately, laid the foundation for the second method: single-molecule microscopy. The method turns the fluorescence of individual molecules on and off. Scientists image the same area multiple times, letting just a few interspersed molecules glow each time. Superimposing these yields dense images at the nanolevel.

The techniques launched the field known as nanoscopy, allowing scientists to visualize the pathways of individual molecules inside living cells. Researchers can now see how molecules create synapses among nerve cells in the brain; they can track the proteins involved in Parkinson's, Alzheimer's and Huntington's diseases as they aggregate; they can follow individual proteins in fertilized eggs as these divide into embryos.

Over several decades, Moerner's work has been funded by NSF's Directorates for Mathematical and Physical Sciences; Biological Sciences; and Education and Human Resources.

Nobel Prize in Economics: Jean Tirole

Jean Tirole became the first French economist since 1988 to win the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel "for his analysis of market power and regulation."

Tirole is from the Toulouse School of Economics in the University of Toulouse in France. His research uses game theory to

understand the behavior and regulation of the large firms that often dominate industries, such as telecommunications, banking, electricity and others.

A small number of large firms, or a single monopoly, often controls market forces within an industry. Left unregulated, such markets may produce abnormally high prices, or allow unproductive firms to block the entry of new, more prolific ones. Tirole's investigation of these firms and markets has resulted in a unified theory that helps answer important policy questions regarding how governments might best deal with mergers or cartels, or how they could regulate monopolies.

His model-based theories also have been important to legal cases promoting or maintaining market competition. Economists in the U.S. Department of Justice and the Federal Trade Commission have used his techniques to analyze several potential antitrust cases, and Tirole's work has contributed to significant changes in U.S. law.

The base for Tirole's groundbreaking research was supported by NSF's Economics Program while Tirole was at MIT during the early part of his career, from 1984 until 1992.

NSF's Social and Economic Sciences Division in its Directorate for Social, Behavioral and Economic Sciences (SBE) awarded three grants for projects on which Tirole had substantial input. A fourth project received an award from SBE's Science of Science and Innovation Policy Program.

NSF has funded every economics winner since 1998. Tirole is the 51st NSF-funded economist to win the prize.

-NSF-

Media Contacts

Bobbie Mixon, NSF, (703) 292-8070,
bmixon@nsf.gov

Cheryl Dybas, NSF, (703) 292-7734,
cdybas@nsf.gov

Related Websites

The Nobel Prize Web site:

<http://www.nobelprize.org/>

Fact Sheet: NSF-Funded Nobel Prize
Winners in Science Through 2014:

[http://www.nsf.gov/news/news_summ.jsp?
cntn_id=100683](http://www.nsf.gov/news/news_summ.jsp?cntn_id=100683)

The National Science Foundation (NSF) is an independent federal agency that supports fundamental research and education across all fields of science and engineering. In fiscal year (FY) 2014, its budget is \$7.2 billion. NSF funds reach all 50 states through grants to nearly 2,000 colleges, universities and other institutions. Each year, NSF receives about 50,000 competitive requests for funding, and makes about 11,500 new funding awards. NSF also awards about \$593 million in professional and service contracts yearly.

 [Get News Updates by Email](#)

Useful NSF Web Sites:

NSF Home Page: <http://www.nsf.gov>

NSF News: <http://www.nsf.gov/news/>

For the News Media:

<http://www.nsf.gov/news/newsroom.jsp>








Science and Engineering Statistics:

<http://www.nsf.gov/statistics/>

Awards Searches:

<http://www.nsf.gov/awardsearch/>

Email  Print 

- 
- 
- 
- 
- 
- 
- 

- [Feedback](#) ▶ [Take our Customer Satisfaction Survey](#)

[↑ Top](#)

- [Funding](#)
- [Awards](#)
- [Discoveries](#)
- [News](#)
- [Publications](#)
- [Statistics](#)
- [About NSF](#)
- [Fastlane](#)

- [Research.gov](#)
- [USA.gov](#)
- [National Science Board](#)
- [Recovery Act](#)
- [Budget and Performance](#)
- [Annual Financial Report](#)

- [Web Policies and Important Links](#)
- [Privacy](#)
- [FOIA](#)
- [NO FEAR Act](#)
- [Inspector General](#)
- [Webmaster Contact](#)
- [Site Map](#)



The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230,
USA Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (800) 281-8749

- [Text Only Version](#)
- [View Mobile Site](#)