

Diabologic: 2008 Kavli Prizes

by Frank Dolinar

Nearly everyone knows about the Nobel Prizes, established in [Alfred Nobel's](#) will in 1895, generally regarded as the most prestigious awards in their respective fields. The prizes in [Peace](#), [Literature](#), [Chemistry](#), [Physiology or Medicine](#), and [Physics](#) were first awarded in 1901. An associated prize, not specified in Nobel's will is the [Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel](#). This prize was instituted by [Sweden's central bank](#) in 1968 and first awarded in 1969.

These awards in Literature, Physics, Chemistry, and Medicine are presented each year at a ceremony in Stockholm, Sweden, on December 10, the anniversary of Nobel's death.

Fewer people have yet heard of the Kavli Prizes. These are awards to recognize seminal advances in astrophysics, neuroscience, and nanoscience. They are being awarded for the first time this year.

The [Norwegian Academy of Science and Letters](#) announced the winners of the first biennial Kavli Prizes on May 28, 2008. The laureates were selected for their groundbreaking research that has significantly advanced our understanding of the unusual properties of matter on an ultra-small scale, the basic circuitry of the brain, and the nature of quasars. HRH Crown Prince Haakon will present the prizes to the Kavli Laureates at an award ceremony in the Oslo Concert Hall on the 9th of September 2008.



These prizes are the creation of Fred Kavli and the foundation he endowed. Each prize consists of a scroll and a medal for each winner and a cash award of \$1 million (USD) shared by the winners of that prize.

The [Kavli Foundation](#), established in December 2000, has two major goals:

- advancing science for the benefit of humanity; and
- promoting increased public understanding & support for scientists & their work.

In addition to prizes, the foundation pursues its mission via an international program of research institutes worldwide (three in Europe, two in China, and ten in the United States), six endowed professorships, and symposia in the fields of astrophysics, nanoscience, neuroscience, and theoretical physics.

Inaugural Kavli Prizes 2008

In the words of Martin Rees, President of the Royal Society:

“The Kavli Foundation has chosen to focus its support on three key fields of science that offer special excitement and promise: Astrophysics, Nanoscience and Neuroscience. These sciences, collectively, span the grandest scale, the smallest of dimensions and the greatest complexity. The prizes that the Foundation is now announcing will surely be a further boost to these potentially transformational subjects. It is specially welcome that there is not an explicit limit to the number who can share a Kavli Prize. This is welcome recognition that the greatest scientific advances now often require a collaborative team effort.”

These three prizes are shared by seven outstanding scientists, described below.

Astrophysics

“The Kavli Prize in Astrophysics is awarded for outstanding achievement in advancing our knowledge and understanding of the origin, evolution and properties of the universe, and includes the fields of cosmology, astrophysics, astronomy, planetary science, solar physics, space science, astrobiology, astronomical and astrophysical instrumentation, and particle astrophysics.”

— from the Kavli Foundation website



The astrophysics prize was awarded jointly to Maarten Schmidt, of the California Institute of Technology, US, and Donald Lynden-Bell, of Cambridge University.

The research of professors Schmidt and Lynden-Bell deals with quasars and the black holes that generate the quasar's extraordinary levels of energy output.

Neuroscience

"The Kavli Prize in Neuroscience is awarded for outstanding achievement in advancing our knowledge and understanding of the brain and nervous system, including molecular neuroscience, cellular neuroscience, systems neuroscience, neurogenetics, developmental neuroscience, cognitive neuroscience, computational neuroscience and related facets of the brain and nervous system."

— from the Kavli Foundation website



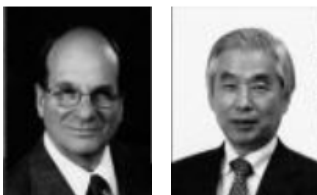
The neuroscience prize goes to three scientists: Pasko Rakic, of the Yale University School of Medicine, US, Thomas Jessell, of Columbia University, US, and Sten Grillner, of the Karolinska Institute in Sweden.

These men have grappled with the complex questions posed by the human nervous system. They have found answers that give us the ability to see the details without getting lost in the complexity, to understand a bit more of the how and the why it works, and to appreciate that we can know how the brain grows, is organized, and communicates with the rest of our bodies.

Nanoscience

"The Kavli Prize in Nanoscience is awarded for outstanding achievement in the science and application of the unique physical, chemical and biological properties of atomic, molecular, macromolecular and cellular structures and systems manifested in the nanometer scale. This includes molecular self-assembly, nanomaterials, nanoscale instrumentation, nanobiotechnology, macromolecular synthesis, molecular mechanics and related topics."

— from the Kavli Foundation website



Louis E. Brus, of Columbia University, US, and Sumio Iijima, of Meijo University in Japan, share the nanoscience prize.

According to the Kavli Foundation website, the Norwegian Academy of Science and Letters has awarded the Kavli Prize in Nanoscience for 2008 *"for their large impact in the development of the nanoscience field of the zero and one dimensional nanostructures in physics, chemistry and biology."*

I spend about one weekend a month introducing general audiences to the concepts and growing importance of nanotechnology in our lives. I know something about the topic. These scientists spend their days *inventing* the disciplines of nanoscience and nanotechnology with their research.

I'm awestruck by their vision.

Summary & Conclusion

The vast majority of humans who populate this small blue marble called Earth desperately need to understand and appreciate more about science in general, how scientists work in particular, and how science interacts with society. Despite student complaints about the difficulties of learning science and mathematics, without such learning too many people unwittingly find themselves living lives guided by the erratic compass of mythology and superstition.

Fred Kavli's dedication to addressing this fundamental need and his willingness to commit his money to that end via his foundation, the various academic institutes, professorships, and ongoing seminars has made him well known in the world of science. It's made him one of my heroes!

The Kavli Foundation is just getting started, but in the realm of science, education, and society, I believe it has already become a positive force — and one to be reckoned with.

Finally, I add my small congratulations to the seven winners of the Kavli Prizes for 2008. These seven scientists are only a handful of the thousands delving into the myriad aspects of astrophysics, nanoscience, and neuroscience. Each day the cumulative efforts of these researchers bring us perhaps one step closer to a better understanding of ourselves and the large and small truths of the universe in which we live.

If you have a broadband connection to the Internet, you can view the actual announcement ceremony at <http://media01.smartcom.no/Microsite/go.aspx?eventid=3116&urlback=null&bitrate=160057>

This video lasts just over 42 minutes.