

## News

# 2011 Nobel Prizes in Medicine, Physics & Chemistry

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### Abstract

This news article contains news about 2011 Nobel Prizes in medicine, physics and chemistry which appeared in viXra Log at <http://blog.vixra.org>.

**Key Words:** 2011, Nobel Prize, medicine, physics, chemistry.

### October 3, 2011: [The 2011 Nobel Prize in Medicine is awarded to Bruce Beutler, Jules Hoffmann, Ralph Steinman](#)

The first of this years Nobel prizes has been awarded for Medicine. Half the prize goes jointly to Bruce Beutler and Jules Hoffmann, for “*their discoveries concerning the activation of innate immunity*” and the other half goes to Ralph Steinman for “*his discovery of the dendritic cell and its role in adaptive immunity*”



Photo: Mosimann for Balzan

Bruce A. Beutler



Photo: Mosimann for Balzan

Jules A. Hoffmann



Photo: Rockefeller University Press

Ralph M. Steinman

**Update:** Tragically it is now being reported that Ralph Steinman died on 30th September. It seems likely that the Nobel committee were not aware of his death at the time of the announcement today. According to the present rules the Nobel can only be awarded posthumously when the Laureate dies after the announcement but I hope that sense will prevail and the award will stand.

**Further update:** The Nobel committee has now stated that the award will indeed stand.

### October 4, 2011: [Nobel Prize for Physics 2011 is awarded to Saul Perlmutter, Brian Schmidt, Adam Riess](#)

The Nobel Prize for Physics 2011 has been awarded half to Saul Perlmutter and the second half jointly to Brian Schmidt, Adam Riess, for the discovery the the acceleration of the

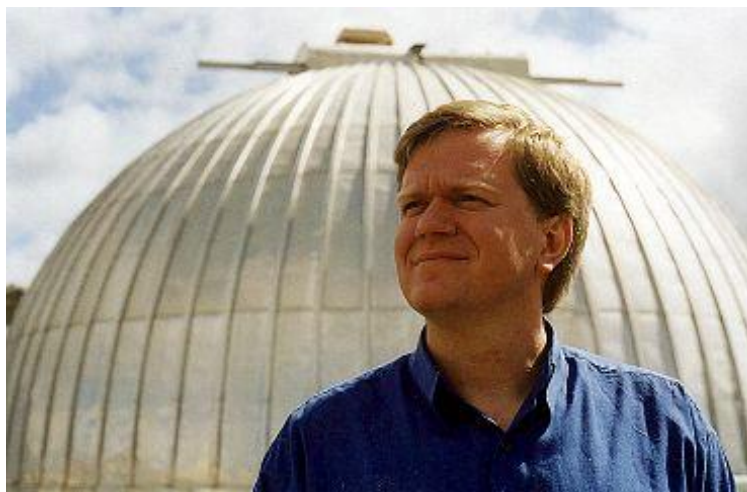
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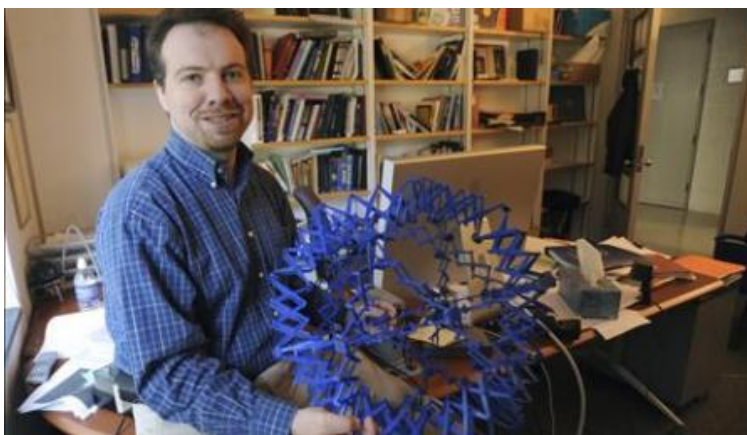
expansion of the universe using supernovae at high  $Z$ . This discovery had been widely predicted as a candidate for a Nobel prize. See for example my [predictions for last year](#).



Saul Perlmutter



Brian Schmidt



Adam Riess

In the late 1990s these astronomers upset the prevalent belief that the universe's acceleration must be slowing down due to the pull of gravity. They observed the brightness of distant supernovae in the universe, using them as standard candles to gauge distance. A comparison of the redshift and the brightness was found to be more consistent with the view that the rate of expansion is increasing.

The simplest way to model the expansion is to add a cosmological constant term to Einstein's gravitational field equations. Such a term means that energy is added to space as it expands which must be compensated by [negative gravitational energy](#) from the increasing rate of expansion. The popular term dark energy has been used to refer to this mysterious feature of space and time but its origin remains a mystery and the Nobel prize has only been awarded for the discovery of the acceleration, not for dark energy.

Physicists can naively calculate a theoretical value for dark energy from vacuum effects due to known particles. Sadly the result they get is 120 orders of magnitude greater than the value that can account for the accelerating expansion. A smaller value could be obtained if the negative contribution from fermions were to partly cancel the positive contribution from bosons, but to get the observed result would require an imperfect cancellation of two numbers to 120 decimal places and this seems hardly likely to happen by coincidence. It is thought that only a full quantum theory of gravity can resolve this problem.

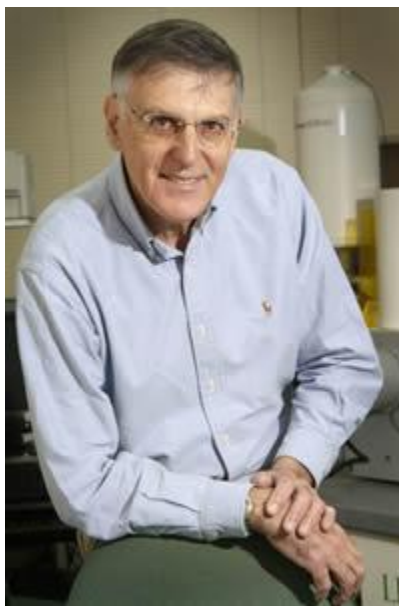
As a side note it is worth mentioning that Erwin Hubble himself was never awarded a Nobel prize for his discovery of the expanding universe. At the time work in astronomy and cosmology was not considered eligible and Hubble campaigned to have this changed. The Nobel committee relented after his death. Since then there have been a few prizes given for work in astronomy but mostly in relation to fundamental physics, including the discovery of cosmic rays, cosmic neutrinos, the microwave background radiation etc.

### **October 5, 2011: [Nobel Prize for Chemistry 2011 is awarded to Daniel Shechtman](#)**

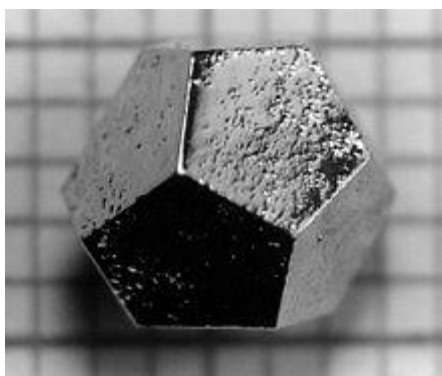
The Nobel Prize for Chemistry 2011 has been awarded to Daniel Shechtman for the discovery of quasicrystals. He has previously been awarded the Wolf prize in Physics.

Quasicrystals are substances whose molecular structure is ordered in a form similar to crystals but is not periodic. Such materials can naturally form into geometrical solids just as crystals can, but the solids formed from crystals are always shapes that can tessellate space, such as a cube. Quasicrystals on the other hand can form shapes such as a dodecahedron.

The mathematical patterns that describe the layouts of the molecules were studied by Roger Penrose but have also been found in some ancient arabic art.



Shechtman was the first to make such crystals in 1984.



Ho-Mg-Zn icosahedral quasicrystal