

## Nobel Prize in Physics 2011

Professor Mathew Colless, Director of the Australian Astronomical Observatory (AAO), has congratulated Australian astronomer Professor Brian Schmidt on being awarded the 2011 Nobel Prize for Physics.

Professor Schmidt (pictured at right) shares the honour with Professors Adam Reiss and Saul Perlmutter in the USA for their joint discovery, in 1998, that the expansion of the Universe is speeding up.



“This was a revolutionary piece of work,” said Professor Colless, who is himself a cosmologist.

“Brian is not only an excellent scientist but has also been active in shaping the direction of the Australian astronomical community. He has been a strong supporter of the AAO, and is a member of its Advisory Board.”

The discovery of the accelerating expansion was based on observations of exploding stars called Type Ia supernovae in distant galaxies.

The techniques for finding these were partly developed on the AAO’s flagship telescope, the 3.9-m Anglo-Australian Telescope, in the late 1980s and early 1990s.

The first successful search for distant supernovae was conducted at the 1.5-m Danish Telescope in Chile the late 1980s. This found two objects, one of which (SN 1988U) was confirmed by having its light spectrum recorded with the AAT.

“This was the first distant Type Ia supernova to be spectroscopically confirmed,” said Professor Colless.

In parallel with this development, astronomers Saul Perlmutter, Carl Pennypacker and Warrick Couch (now at Swinburne University of Technology in Melbourne) built a special wide-field camera for use on the AAT and started making a systematic search for distant Type Ia supernovae.

Both Warrick Couch and Brian Boyle, a former Director of the AAO, became members of Saul Perlmutter’s Supernova Cosmology Project team, which with Brian Schmidt’s High-z Supernova Search Team made the startling 1998 discovery of the accelerating universe.

The AAO’s involvement in the field continues, with one of its ARC Future Fellows, Dr Chris Lidman, now a member of the ongoing Supernova Cosmology Project team. The team, like other groups, is now working to use supernovae to distinguish between different physical phenomena that might be driving the universe’s accelerating expansion.

Professor Couch commented that “the accelerating universe discovery was not just one of the most profound scientific breakthroughs in the last century, but also came about through the very best ingredients of scientific research: strong leadership, teamwork, competition, and innovation, which at the end of the day led to the two teams coming to the same astonishing conclusion independently.”