



# Aussie team puts the universe in focus

**Leigh Dayton**  
 Science writer

A SIMPLE system of optical fibres and fancy filters promises to transform ground-based astronomy while putting millions of dollars into Australian pockets. The idea is to sharpen the view of space seen by optical telescopes — such as the Anglo-Australian Telescope in NSW or Hawaii's Keck Telescope — which is now blurred by Earth's atmosphere.

Astronomers have spent hundreds of millions of dollars trying to side-step the problem by building ever-bigger telescopes or compensating for the "bright" distorting light of the infrared part of the spectrum by rapidly moving the lenses or measuring and adjusting for the incoming infrared radiation.

"Bright sky in the infrared is a curse to astronomers," said team leader University of Sydney astronomer Joss Bland-Hawthorn, previously with the Anglo-Australian Observatory. Professor Bland-Hawthorn developed the technology with colleagues at the AAO and Redfern Optical Components in Sydney.

The CEO of ROC, physicist Mark Englund, said: "The tech-



**Breakthrough:** Mark Englund and Joss Bland-Hawthorn yesterday

nology has the potential to change astronomy and become a multi-million-dollar niche market".

According to Dr Englund, Australia has already been highly successful in developing technology for specialist markets such as astronomy.

He agreed with Professor Bland-Hawthorn's estimate that, once commercialised, the technology would be roughly 100 times cheaper to install on an instrument than today's less efficient adaptive systems.

Federal Science Minister Kim Carr welcomed the news that the system was successfully trialled last month at the AAT at Siding Spring. "I sincerely hope the technology can realise the potential that has been demonstrated to date," he said.

"This is exactly the type of innovation Australia needs to be globally competitive and shows why public investment in our National Innovation System is so vital. It is great to see that, in the International Year of Astronomy, Australian researchers are

making a significant contribution with breakthrough research."

The "clever fibre" technology blocks out the bothersome infrared radiation produced when atmospheric gases interfere with incoming starlight.

Very simply, when light hits the telescope it is focused on to an optical fibre that transmits it, via an adaptor, into the ROC-designed filter.

The filter blocks hundreds of bands of "bad" light, sending the "good" light to another optical fibre through an adaptor. That fibre transmits the filtered light to an imaging system which prepares it for astronomers.

"The international interest has been amazing," claimed Professor Bland-Hawthorn. He said six of the eight major observatories worldwide had already asked to be kept up to date on developments.

As well, he said, his group was the only non-US team asked to make a project submission to the US Decadal Review Committee for Science. The review is central to planning for and funding key research.

Dr Englund predicted that the technology, covered by patents, could be ready for market within two years.