

The importance of telescopes of all sizes, from small to extremely large: the example of exoplanet research

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Brief CV

Professor Alcock was educated at the University of Auckland, New Zealand and at the California Institute of Technology. He has previously been a long-term member of the Institute for Advanced Study (1978-1980), an Associate Professor of Physics at the Massachusetts Institute of Technology (1981-1986), a physicist at the Lawrence Livermore National Laboratory (1987-2000), and a Professor of Astronomy and Physics at the University of Pennsylvania (2001-2004).

He assumed his position as Director in 2004, and served as Acting Undersecretary for Science for the Smithsonian (2008-2009). Professor Alcock received the Department of Energy's Ernest O. Lawrence Award for Physics in 1996 and the Beatrice M. Tinsley Award of the American Astronomical Society in 2000. He was elected to the National Academy of Sciences in 2001 and to the American Academy of Arts & Sciences in 2006. Professor Alcock's research interests include the determination of the composition of cosmic dark matter, innovative surveys of the outer solar system, and massive compact halo objects, comets and asteroids.

ABSTRACT

There are three "extremely large telescopes" under development internationally. There are very good scientific reasons for these ambitious developments, but they are challenging engineering projects, and very costly. For decades there have been debates about the relative merits of telescopes of different sizes, with no clear consensus on the balance between investments at various scales. This talk will examine one area of research which is advancing very rapidly, exoplanet research, to explore this issue. The field is too new to offer any firm conclusions, but there are very interesting questions to discuss.