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国台学术报告 NAOC COLLOQUIUM

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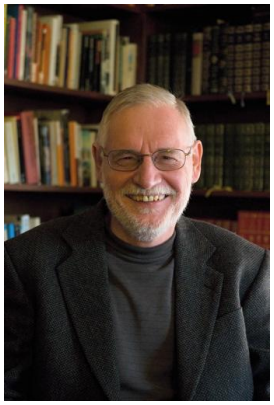
TIME: Wednesday, 10:30 AM, May 30, 2012 LOCATION: A601 NAOC

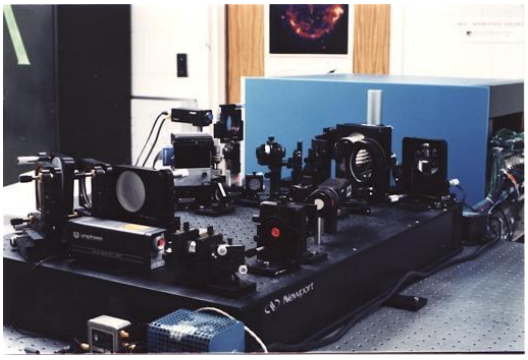
The future of adaptive optics in astronomy



Prof. Edward Kibblewhite (University of Chicago)

Prof. Edward Kibblewhite is a Professor at the University of Chicago Department of Astronomy and a senior fellow of the Computation Institute. He obtained his Ph.D at the University of Cambridge in England in1970, moved to the National Observatory in Tucson in 1986 and to Chicago in 1990. At Chicago he led the first civilian effort to develop laser adaptive optics for astronomy and developed a facility pulsed sum frequency lasers for use at Palomar Observatory. He is interested in a wide range of topics in technology development for astronomy.

Abstract



Adaptive Optics is a general technology for correcting images of objects seen through inhomogeneous medium. Originally developed by astronomers and the military to study objects outside the earth’s atmosphere, the technology now has applications in many different fields, from biological imaging to thermonuclear fusion. In this talk, I will first review the current status of adaptive optics in astronomy with particular emphasis in the use of lasers to provide an artificial beacon outside the earth’s atmosphere. Adaptive Optics is needed to enable astronomers to meet the scientific goals of current and next generation telescopes, such as TMT. In the future it may be possible to build still larger telescopes at an economic cost by applying the principles of adaptive optics to the construction of the primary mirror of the telescope. This technology may enable us to build light telescopes in relatively small domes and with perhaps lower capital and operating costs than current designs. The primary mirror would then consist of many thousand mass produced segments moving at a speed fast enough to correct for the wave-front distortions of the atmosphere and the mechanical effects of wind and gravity. I will discuss the advantages and challenges associated with this type of technology and attempt to show that this approach is viable for future telescope projects.

All are welcome! Tea, coffee, biscuits will be served at 10:15 A.M.

You are welcome to nominate speakers to Shude Mao (shude.mao@gmail.com), Licai Deng (licai@bao.ac.cn), Xuelei Chen (xuelei@cosmology.bao.ac.cn).