

Adaptive Optics in Institute of Optics and Electronics, China

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Adaptive Optical (AO) technology can compensate for wave-front errors in real-time to improve image and beam quality. The research and development on AO in China began in 1979. In 1980, the first laboratory on AO in China was established in Institute of Optics and Electronics (IOE), Chinese Academy of Sciences (CAS). Since then several AO systems have been built in this Laboratory. The 19-element system is the first AO system in the world ever used in inertial confinement fusion (ICF) facility in our knowledge. It corrects the static error of this large laser engineering. The 21-element system was firstly tested at the 1.2m telescope of Kunming Observatory in 1990 and then up-dated as an IR AO system installed at the 2.16m telescope of Beijing Observatory. The 37-element system was used with a turbulence cell in Laboratory on Atmospheric Optics in Hefei to conduct elementary research on Atmospheric Optics. The 61-element system for astronomical observation is newly developed. It has been successfully installed at the 1.2m telescope of Kunming Observatory and a laser guide star system will be integrated with the system. A compact AO system using our newly developed miniature DM for high resolution ophthalmic imaging of retina is also being built. The key elements of these AO systems, deformable mirrors and fast-steering mirrors, are all developed in this Laboratory. In this talk, the main configurations of these AO systems, some test results as well as the specifications of these active mirrors will be presented.