

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advanced Technologies (2)

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ADAPTIVE OPTICS AND BEAM STEERING REQUIREMENTS IN FREE-SPACE OPTICAL
COMMUNICATIONS

Abstract

Recent years have seen dramatic developments in the field of free-space optical communications for mobile platforms. Systems for use in ground to air and ground to satellite applications are becoming increasingly more sophisticated. However, acquisition, pointing and tracking and atmospheric turbulence are still major obstacles in realizing robust optical communications systems. Adaptive Optics (AO) is generally used for correcting the wave-front distortions but their requirements on communications scenarios are different with respect to astronomy. Beam steering and AO systems have to cope with fast turbulence changes when involving mobile partners and strong turbulence conditions when working at low elevation angles. This paper will investigate the characteristics of such systems in these scenarios.