

EARTH OBSERVATION SYMPOSIUM (B1)  
Earth Observation Sensors and Technology (3)

Author: Prof. Yang Bingxin

Beijing Institute of Space Mechanics & Electricity, China Academy of Space Technology (CAST), China,  
cxl\_npu@sina.cn

Dr. Chen Xiaoli

Beijing Institute of Space Mechanics & Electricity, China Academy of Space Technology (CAST), China,  
cxl\_npu@sina.cn

TECHNOLOGIES OF HIGH-RESOLUTION EARTH OBSERVATION WITH DEPLOYABLE OPTICS  
FROM GEOSTATIONARY ORBIT

**Abstract**

High-resolution earth observation from geostationary orbit is a good way to satisfy the increased time resolution for resource, environment and disaster monitor. High-resolution earth observation from geostationary orbit will require optical remote sensor with long focal length and ultra-large aperture. Given size, weight and launch ability constraints, as well as cost consideration, the traditional monolithic aperture optical system couldn't satisfy the need. This paper gives a new method, the segmented deployable optics with CMOS detector to realize high-resolution remote sensor from geostationary orbit. The adaptive optical system is used to realize co-phase of the segmented reflector and guarantee the imaging quality. The optical system of the remote sensor is TMA optical system with annual field, which can enlarge the observation coverage and realize Multi-spectral earth observation synchronously. The CMOS detector with global shutter can control exposure time and has low power and high anti-radiation characteristics. This paper discusses the overall design, the optical design and the adaptive optical system design of the high-resolution remote sensor from geostationary orbit.