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4.4.3. Local characterization of fiber Bragg gratings4.4.4. Strain and temperature sensors; 4.5. Conclusion; 4.6. Bibliography; Chapter 5. Passive Remote Sensing at Submillimeter Wavelengthsand THz; 5.1. Introduction; 5.1.1. Earth atmosphere and the radioelectric spectrum; 5.1.2. Application fields of heterodyne detection; 5.2. Submillimeter-THz low noise heterodyne receivers; 5.2.1. Mixers with AsGa Schottky diodes; 5.2.2. Mixers with superconductors (SIS, HEB); 5.2.3. Local oscillator sources; 5.3. Submillimeter - THz applications for astronomy andastrophysics
5.3.1. Airborne or stratospheric balloon observatories

Sommario/riassunto

Scientific and technical knowledge for measurements in modern electromagnetism must be vast as our electromagnetic environment covers all frequencies and wavelengths. These measurements must be applied to fields as varied as nanotechnologies, telecommunications, meteorology, geolocalization, radioastronomy, health, biology, etc. In order to cover the multiple facets of the topic, this book sweeps the entire electromagnetic spectrum, from several hertz to terahertz; considers distances ranging from nanometers to light-years in optics; before extending towards the various measurement techniques using electromagnetic waves for various applications. This book describes these different facets in eleven chapters, each covering different domains of applications. This book on science and measurement techniques in electromagnetism, enables us to form a well informed opinion about: the variety of techniques and methods available to measure the characteristics of electromagnetic waves, in terms of the local field and phase for a broad field of frequencies; the determination of physical quantities such as distance, time, etc., using electromagnetic properties; finding new approaches for new requirements in the field of electromagnetic distribution in complex structures media, such as biological tissues and nanosciences.