1. Record Nr. UNINA9910257419403321

Titolo	Flare Physics in Solar Activity Maximum 22 [[electronic resource]] : Proceedings of the International SOLAR-A Science Meeting Held at Tokyo, Japan, 23–26 October 1990, Dedicated to the Memory of the Late Professor K. Tanaka / / edited by Yutaka Uchida, Richard C. Canfield, Tetsuya Watanabe, Eijiro Hiei
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 1991
ISBN	3-540-47596-6
Edizione	[1st ed. 1991.]
Descrizione fisica	1 online resource (X, 362 p. 143 illus.)
Collana	Lecture Notes in Physics, , 0075-8450 ; ; 387
Disciplina	523.7/5
Soggetti	Observations, Astronomical Astronomy—Observations Astrophysics Geophysics Astronomy, Observations and Techniques Astrophysics and Astroparticles Geophysics/Geodesy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	General introduction -- In memoriam Katsuo Tanaka -- The sources of solar flares -- The Solar-A mission -- Soft X-ray telescope (SXT) -- The Hard X-ray Telescope(HXT) on board SOLAR-A -- The Solar-A Bragg crystal spectrometer -- The wide band spectrometer on the Solar-A -- The SOLAR-A onboard Data Processor (DP) -- Capabilities and limitations of Solar-A -- Optical observations of flare-productive flux emergence -- Flares appear on the red shift side near the inversion line of the H? Dopplergram -- Small scale active phenomena observed with DST and Huairou magnetogram -- Microflares observed in He I 10830 and their relation to the quiet sun magnetic fields -- HeI 10830Å observations of active regions -- Numerical simulations of ultraviolet and X-ray microflares -- Particle acceleration and the locations of hard X-ray sources -- The controversial relationship

between hard X-ray and soft X-ray flares: Causal or non-causal? -- Magnetic morphology of nonthermal electron precipitation during three flares in a highly nonpotential active region -- The role of accelerated ions during the impulsive phase of flares and the production of hard X-rays -- Physical implications of X-ray imaging observations -- Studies of high-energy flare phenomena from simultaneous observations of gamma-rays and energetic particles -- Acceleration of high-energy nuclei as viewed from their chemical composition -- Heating and flows in flares -- Studies of helium-like ion spectra with the SMM flat crystal spectrometer -- X-ray spectra from Hinotori satellite and suprathermal electrons -- Quality improvement of solar flare temperature and density diagnostics derived from BCS spectra -- The beam driven chromospheric evaporation model of large solar flares: a model getting “no respect” from the sun -- Numerical simulations of electron-beam-heated solar flares -- A hydrodynamic thermal model of the impulsive phase of solar flares -- Material flow of a surge flare -- Evolution of hot plasma in flares -- The electron distribution and SXT images of a coronal soft X-ray source -- Interpretation of multi-channel X-ray intensities from solar flares -- Thermodynamic evolution of flares -- Simulation of SXT response to XSST soft X-ray spectrum -- Magnetic morphologies of solar flares -- Theoretical models of solar flares -- The practical application of the magnetic virial theorem -- Maximum energy of semi-infinite magnetic-field configurations -- High-energy particle acceleration during the implosion driven by 3-dimensional X-type current loop coalescence in solar flares -- On mechanisms of solar flares —some observational tests by using Solar-A -- Plasma waves caused by transient heat conduction in a coronal loop as a trigger for impulsive solar flares -- Magnetic structures in the corona -- Chromospheric and coronal activities in the quiet sun originating from photospheric 5-minute oscillations -- VLA supporting observations for SOLAR-A -- X-ray observations of global solar activity -- Coronal structures and the sunspot cycle -- Absorption of magnetoacoustic waves in the solar atmosphere with random inhomogeneities of density and magnetic fields -- SXT observations of MHD turbulence in active regions -- Simulated SXT observations of coronal loops -- Max '91/FLARES 22 -- Studies of X-Ray flares by project CORONAS -- Solar energetic particle observation by GEOTAIL satellite -- Solar flare telescope and 10-cm new coronagraph -- The MSFC vector magnetograph, eruptive flares, and the Solar-A X-ray images -- Nobeyama radioheliograph -- Millimeter interferometric observations of solar flares during the Solar A mission -- Coronal restructuring and coronal mass ejections as infrared from interplanetary magnetic flux ropes -- A proposal for a study of the solar wind near the sun by simultaneous observations with SOLAR-A and Kashima 34m antenna -- Search for transient coronal holes by SOLAR-A soft X-ray telescope -- Application of SOLAR-A SXT data to flare and geomagnetic storm forecasting research.

Sommario/riassunto

The book reviews the knowledge obtained from ground-based and space-borne solar flare research thus at the same time preparing for the forthcoming mission of the satellite Solar A which will be launched in 1991. Accordinglyone section is devoted to experiments on Solar A. The rest review both theory and observational facts to give a physically realistic picture of flares, including problems of magnetic flux emergence, high energy particles in flares, heating and flows in flares, and further problems of solar activity.