

Contents

CORONAS-F Project: The Study of Solar Activity and Its Effects on the Earth 1
V.D. Kuznetsov

Brightness Fluctuations and Global Oscillations of the Sun (DIFOS Experiment) 27
Yu.D. Zhugzhda, V.D. Kuznetsov, and N.I. Lebedev

Study of Active Phenomena in the Solar Corona in the 8–350 Å Range by Imaging Spectroscopy Methods (SPIRIT Experiment) 55
I.A. Zhitnik, S.V. Kuzin, S.A. Bogachev, O.I. Bugaenko, Yu.S. Ivanov, A.P. Ignatyev, V.V. Krutov, A.V. Mitrofanov, S.N. Oparin, A.A. Pertsov, V.A. Slemzin, N.K. Sukhodrev, I.I. Sobelman, A.M. Urnov, S.V. Shestov, and F.F. Goryaev

Experiment with the SPR-N Instrument Onboard the CORONAS-F Satellite: Polarization, Temporal, and Spectral Characteristics of the Hard X-Ray of the Solar Flares 129
I.A. Zhitnik, Yu.I. Logachev, A.V. Bogomolov, V.V. Bogomolov, Yu.I. Denisov, S.S. Kavanosyan, S.N. Kuznetsov, O.V. Morozov, I.N. Myagkova, S.I. Svertilov, A.P. Ignatiev, S.N. Oparin, and A.A. Pertsov

Observations of Doppler Shifts of X-Ray Lines in Solar Flare Spectra Based on DIOGENESS Spectrometer Data 149
Z. Kordylewski, J. Sylwester, B. Sylwester, M. Siarkowski, S. Płocieniak, A. Kępa, M. Kowaliński, W. Trzebiński, and F. Farnik

Investigations of Physical Processes in Solar Flare Plasma on the Basis of RESIK Spectrometer Observations 157
Z. Kordylewski, J. Sylwester, B. Sylwester, A. Kępa, M. Kowaliński, and W. Trzebiński

The Study of the Cosmic Gamma-Emission Nonstationary Fluxes Characteristics by the AVS-F Apparatus Data	175
Yu.D. Kotov, I.V. Arkhangel'skaja, A.I. Arkhangel'sky, S.N. Kuznetsov, A.S. Glyanenko, P.A. Kalmykov, D.B. Amandzholova, V.T. Samoylenko, V.N. Yurov, A.V. Pavlov, O.I. Chervyakova, and I.V. Afonina	
Variability of Extreme Ultraviolet Fluxes at Various Timescales as Measured On board the CORONAS Space Mission (SUFR-SP-K and VUSS-L Experiments)	257
A.A. Nusinov, T.V. Kazachevskaya, V.V. Katyushina, P.M. Svidsky, and D.A. Gonyukh	
Scientific Set of Instruments "Solar Cosmic Rays"	289
S.N. Kuznetsov, A.V. Bogomolov, V.I. Galkin, Yu.I. Denisov, A.N. Podorolsky, S.P. Ryumin, K. Kudela, and J. Rojko	
Protons Acceleration in Solar Flares: The Results of the Analysis of Gamma-emission and Neutrons Recorded by the SONG Instrument Onboard the CORONAS-F Satellite	301
S.N. Kuznetsov, V.G. Kurt, B.Yu. Yushkov, I.N. Myagkova, V.I. Galkin, and K. Kudela	
Dynamics of the Relativistic Electrons Flux of the Earth Outer Radiation Belt Based on the MKL Instrument Data	327
S.N. Kuznetsov, I.N. Myagkova, E.A. Muravieva, B.Yu. Yushkov, L.I. Starostin, Yu.I. Denisov, and K. Kudela	
Dynamics of the Earth Radiation Belts During the Strong Magnetic Storms	337
S.N. Kuznetsov, Yu.I. Denisov, L.L. Lazutin, I.N. Myagkova, E.A. Muravieva, B.Yu. Yushkov, K. Kudela, R. Bucik, and M. Slivka	
Solar Protons in the Earth's Magnetosphere According to Riometric and Satellite Data During the Magnetic Storms of October 2003	349
L.L. Lazutin, S.N. Kuznetsov, Yu. Manninen, A. Ranta, S.N. Samsonov, A.V. Shirochikov, and B.Yu. Yushkov	
Spectrometer IRIS: Investigation of the Time Structure and Energy Spectra of X-Ray Emission from Solar Flares	359
G.A. Matveev, P.B. Dmitriev, I.V. Kudryavtsev, V.P. Lazutkov, M.I. Savchenko, D.V. Skorodumov, and Yu.E. Charikov	
Study of Solar Flares and Gamma-Ray Bursts in the Helicon Experiment	393
E.P. Mazets, R.L. Aptekar, S.V. Golenetskii, V.N. Il'inskii, V.D. Pal'shin, Z.Ya. Sokolova, D.D. Frederiks, and M.V. Ulanov	

RPS-1 Experiment 405
V.M. Pankov, V.L. Prokhin, N.G. Khavenson, A.A. Gusev,
Yu.D. Kotov, A.S. Glyanenko, A.N. Afanas'yev,
and A.A. Karapet'yants

**The Impact of Solar Activity on the Earth Upper Atmosphere
as Inferred from the CORONAS-F Scientific Experiments** 419
S.I. Boldyrev, I.A. Egorov, I.A. Zhitnik, G.S. Ivanov-Kholodny,
S.P. Ignat'yev, V.N. Ishkov, O.P. Kolomiitsev, S.V. Kuzin,
V.D. Kuznetsov, and A.I. Osin

**On-Board and Ground-Based Complexes for Operating
the Science Payload of the CORONAS-F Space Mission** 457
A.I. Stepanov, D.V. Lisin, V.D. Kuznetsov, A.N. Afanas'ev,
A.I. Osin, and J. Schwarz

**CORONAS-F: Infrastructure and Organization
of the Information Exchange** 465
A.I. Osin, E.P. Trushkina, and A.A. Freizon

**Organization of a Unified Data Archive and Accessories
for Processing Solar Images**..... 473
A.I. Osin and E.P. Trushkina

Conclusion 477

Index..... 479