

C O N T E N T S

SUBJECT AREA 7. NON-IDEAL PLASMAS

	Pages
J. Ortner, I. M. Tkachenko NONIDEAL PLASMAS DIAGNOSTICS BY THE DYNAMICAL PROCESSES INTEGRAL CHARACTERISTICS	646
Y. Vitel, A. Mokhtari and M. Skowronek COLLISION FREQUENCY IN PLASMAS HAVING FEW PARTICLES IN THE DEBYE SPHERE	648
V. M. Zubtsov and A. L. Ovsyannikov HYSTERESIS ON ELECTROPHYSICAL PROPERTIES OF A MAGNETIZED NONEQUILIBRIUM PLASMA	650
E. K. Borisov, A. G. Lobov, V. G. Muravenko, F. A. Nikolaev, V. D. Tyurin LOSS OF MASS IN CAPILLARY DISCHARGE	652
M. A. Samsonov, Z. S. Shambetov THE PROPERTIES OF ARGON PLASMA WITH Al, Cu AND Fe ADDITIVES	654
A. M. Ermolaev, A. A. Mihajlov and M. M. Popović VALIDITY OF ADIABATIC APPROXIMATION IN THE CALCULATION OF SPONTANEOUS EMISSION IN SYMMETRIC ION-ATOM COLLISIONS	656
Z. Djurić, D. Djordjević and A. A. Mihajlov ON THE INFLUENCE OF FOIL MATERIAL ON ELECTRODYNAMIC MACROPARTICLE ACCELERATOR CHARACTERISTICS	658
J. Koceić, S. Popović RADIAL TEMPERATURE DISTRIBUTIONS AND THE EVALUATED ELECTRICAL CONDUCTIVITIES OF XENON PULSED DISCHARGE PLASMAS	660

SUBJECT AREA 13.

CORONAS, SPARKS AND HIGH PRESSURE GLOWS

- S.Kajita, S.Ushiroda and Y.Kondo 662
THE VARIATION OF THE ELECTRON ATTACHMENT COEFFICIENT
CAUSED BY CORONA DISCHARGE IN OXYGEN
- P.Domens, D.Dring, J.Dupuy, A.Gibert, A.R.Rowlands and 664
R.T.Waters
DISSIPATION OF IMPULSE CORONA SPACE CHARGE
- T.E.Allibone and J.C.Saunderson 666
CORONA AT VERY HIGH DIRECT VOLTAGES V CORONA IN
ROD/ROD GAPS
- V.Sobek, P.Lukáč, J.Skalný 668
NEGATIVE CORONA DISCHARGE IN MIXTURES OF AIR +
CHLORINATED HYDROCARBONS
- M.Davies and J.E.Jones 670
ERRORS IN LAPLACIAN FIELD COMPUTATIONS USING CHARGE
SIMULATION AND FINITE-ELEMENT METHODS
- M.Davies and J.E.Jones 672
THE VOLTAGE-RESPONSE TIME OF SPACE CHARGES IN DC
POINT-PLANE CORONAS
- V.Meleshko and V.Schveigert 674
SPARK DISCHARGE DYNAMICS IN A STRONG ELECTRIC FIELD
- V.V.Kremnev, G.A.Mesyats, M.V.Novakovsky, Yu.F.Potalitsyn 676
CHARACTERISTICS OF A HIGH-CURRENT SPARK CHANNEL IN
COMPRESSED NITROGEN ON NANOSECOND TIME SCALES
- G.F.Basov, V.V.Kremnev, M.V.Novakovsky, Yu.F.Potalitsyn 678
THE DEVELOPMENT OF HIGH-CURRENT SPARK CHANNEL IN SF₆
AND ITS MIXTURES WITH N₂
- V.V.Kremnev, G.A.Mesyats, Yu.F.Potalitsin 680
COMPUTATION AND DEVELOPMENT OF HIGH-CURRENT SPARK
CHANNEL IN NITROGEN (COMPUTER SIMULATION)
- Ch.Bayarkhuu, L.I.Kiselevski, A.N.Makarevich, D.A. 682
Solovianchik
THE EFFECT OF METASTABLE HELIUM ATOMS ON THE PROPERTIES
OF GLOW DISCHARGE CATHODE PLASMA IN HELIUM

L.E.Aranchuk, S.L.Bogolyubskii	684
SPATIAL AND RADIATIVE CHARACTERISTICS OF HIGHLY IONIZED PLASMA OF EXPLODED WIRES	
A.J.Davies, J.Dutton, R.Kadhim, M.Matallah and R.T.Waters	686
SWITCHING IMPULSE BREAKDOWN IN AIR AT HIGH HUMIDITY LEVELS	
V.P.Larionov and T.N.Tarasova	688
HIGH FREQUENCY CORONA DISCHARGE PECULIARITIES ON WATER DROPS	
I.P.Vereshchagin, M.A.Koshelev, L.M.Makalsky	690
CONDITIONS OF LONG SPARK INITIATION IN ARTIFICIAL CLOUDS OF CHARGED AEROSOLS	

SUBJECT AREA 14.

ARCS

T.R.Dzhumaliev, J.O.Usenkanov, M.K.Asanaliev, S.Kydyraliev, A.Zhajnakov	692
THE DETERMINATION OF COMPRESSED ARC CHARACTERISTICS	
S.A.Babin, A.E.Kuklin	694
PRESSURE BALANCE FOR THE HIGH-CURRENT LOW-PRESSURE ARC DISCHARGE	
Q.Zhuang and M.T.C.Fang	696
TWO DIMENSIONAL ANALYSIS OF TURBULENT NOZZLE ARC	
J.M.Lin, M.T.C.Fang and G.R.Jones	698
THE INTERACTION BETWEEN ABLATION DOMINATED ARC AND ITS COMPRESSION CHAMBER	
W.W.Byszewski, A.B.Budinger and Y.M.Li	700
TRANSITION TO THE THERMIONIC ARC IN HIGH PRESSURE DISCHARGES	
M.Tioursi and R.Haug	702
ARC VOLTAGE NOISE AS A SUM OF INDIVIDUAL PHENOMENA	
J.Vlček	704
DEPARTURES FROM EQUILIBRIUM IN AN ARGON ARC PLASMA	
B.P.Lavrov, T.V.Rudakova and V.Y.Simonov	706
STUDY OF PLASMA PARAMETERS IN CONSTRICTION OF LOW-PRESSURE ARC IN HELIUM	

L. S. Zdanowicz	708
A CUT-OFF LIMIT AND THE MICROFIELD REDUCTION OF IONIZATION ENERGY IN THE HEAVILY CONTAMINATED SWITCHING ARC PLASMA	
M. Tripković, M. Marinković, I. Holclajtner-Antunović and G. Andrić	710
DIAGNOSTICS OF STABILIZED U-SHAPED D.C. ARC PLASMA WITH AEROSOL SUPPLY	
D. J. Bingeliene, L. Pranivičius	712
THE STUDY OF ACOUSTIC WAVES GENERATED BY BURNING ARCS	
G. G. Shishkin, G. R. Jones and S. Taylor	714
ACOUSTIC WAVES IN PULSE ARCS WITH BLAST	
C. Królikowski and A. Kamińska-Pranke	716
FUNDAMENTAL PROPERTIES OF A.C. STABILIZED ARC	
V. A. Lapshin, M. E. Solovianchik, V. I. Tretiak	718
INVESTIGATION OF ELECTRICAL AND SPECTRAL CHARACTERISTICS IN THE FIRST AND SECOND PHASE OF THE PULSE ARC DISCHARGE	
N. G. Gavrilov, Yu. E. Kreindel, F. N. Shvedov	720
INITIATION OF A CONTRACTED ARC WITH A CATHODE SPOT BY AN AUXILIARY DISCHARGE	
V. P. Borzenko, O. L. Volkov, V. I. Krasov, I. A. Krinberg, N. V. Lebedev, V. L. Paperny and V. G. Simonov	722
ON THE MECHANISM OF ANOMALOUS ELECTRON ION FRICTION IN A PLASMA JET OF A VACUUM ARC	
S. Couris, G. Zissis, M. Aubès and J. J. Demelincourt	724
INVESTIGATION OF THE DEPARTURES FROM THE LOCAL THERMODYNAMIC EQUILIBRIUM AND THEIR INFLUENCE ON 6^3P LEVELS POPULATION IN HIGH PRESSURE MERCURY DISCHARGES	
S. Couris, G. Zissis, A. Rahal and M. Aubes	726
CHEMICAL COMPOSITION AND TRANSPORT COEFFICIENTS OF A TWO-TEMPERATURE PLASMA IN HIGH PRESSURE MERCURY DISCHARGES	
M. Vlad, F. Spineanu, G. Musa	728
A MODEL FOR THE DISCHARGE IN THE METAL VAPOURS CONTINUOUSLY EMITTED FROM THE ANODE	
I. I. Beilis	730
PHYSICAL PROCESSES IN THE VACUUM ARC NEAR THE HIGH MELTING POINT METAL CATHODE	

SUBJECT AREA 20:
DIAGNOSTIC METHODS

A.G.Zhiglinsky, G.G.Kund, A.O.Morozov, G.Munyeme and A.N.Samokhin NEW POSSIBILITIES OF POLYCHROMATIC HOLOGRAPHIC INTERFEROMETRY FOR THE DIAGNOSTICS OF HIGH AND LOW PRESSURE PLASMAS	732
D.W.Lamb and G.A.Woolsey AN INTERFEROMETRIC STUDY OF AIR AND SF ₆ CORONAS	734
L.S.Bogdan, Yu.V.Zadiraka, S.M.Levitsky, Eu.V.Martysh, S.N.Makhno REFRACTION OF ELECTROMAGNETIC WAVES BY PLASMA INHOMOGENEITIES OF THE RING DISCHARGER	736
T.S.Mel'nikova, V.I.Nazaruk APPLICATION OF TOMOGRAPHIC AND STATISTIC METHODS FOR INVESTIGATION OF NONSTATIONARY PROCESSES IN FAS DISCHARGES	738
A.G.Frank, D.T.Kiselev, N.P.Kyrie, V.S.Markov, N.G.Preobrazhensky, L.G.Velikanova SPECTROTOMOGRAPHY OF CURRENT SHEET PLASMA IN NONLINEAR REGIME OF MAGNETIC RECONNECTION	740
N.G.Preobrazhensky, L.G.Velikanova RADIAL MODULATORS TECHNIQUE IN PLASMA TOMOGRAPHY	742
S.Martishin, V.Swiridkina, A.Sukhov, V.Tarasova, I.Tovarischty NON-CONTACT METHOD OF STADY OF THE GAS DISCHARGE PLASMA HEAVY COMPONENT	744
S.K.Händel and A.Lunk TIME CORRELATED STREAK PHOTOGRAPHS OF PULSED DISCHARGES BY A SPECIAL CASSETTE SYSTEM	746
V.S.Burakov, P.A.Naumenkov and S.N.Raikov DIAGNOSTICS OF PLASMA OF NEAR-SURFACE OPTICAL AIR BREAKDOWN BY INTRACAVITY LASER SPECTROSCOPY	748
S.A.Babin, V.I.Donin, A.V.Rodishevsky, D.A.Shapiro DIAGNOSTICS OF ION-LASER PLASMA BY NONLINEAR SPECTROSCOPY METHODS	750

Yu.P.Korchevoy, S.I.Krivosheev, V.N.Makarchuk and O.I.Fisun	752
PLASMA NOISE INFLUENCE ON THE MEASUREMENT OF THE ELECTRON ENERGY DISTRIBUTION FUNCTION	
H.Ameniya, M.Giho and Y.Sakamoto	754
PROBE DIAGNOSTICS OF NEGATIVE IONS IN PLASMA	
G.A.Batyrbekov, E.A.Belyakova, M.S.Benilov, G.G.Bochkarev, S.K.Kunakov, B.V.Rogov	756
PROBE DIAGNOSTICS OF NON-SELF-MAINTAINED DISCHARGE IN N_2-O_2 PLASMA	
M.Tichý and M.Šícha	758
A CONTRIBUTION TO THE LANGMUIR PROBE DATA ANALYSIS IN A GLOW DISCHARGE PLASMA	
B.Yu.Adamiak, F.I.Vysikailo, V.I.Sen	760
PROBE FOR MEASUREMENT OF GAS IONIZATION RATE SPATIAL DISTRIBUTION PRODUCED BY E-BEAM	
A.A.Kabantsev and S.Yu.Taskaev	762
SCATTERING OF THE FAST ATOMS BY A PROBING ION BEAM AS A DIAGNOSTIC TECHNIQUE TO DETERMINE THE SPACE POTENTIAL OF A PLASMA	
A.S.Akhmanov, K.L.Gavrilov, A.S.Kovalev and A.Yu.Poroykov	764
RF DISCHARGE ION CONCENTRATION PROFILE MEASUREMENT	
V.Peskov	766
NEW ACHIEVEMENTS IN THE WIRE CHAMBER METHOD	
P.J.Paris, M.L.Sawley, M.Q.Tran and K.Voser	768
MEASUREMENT OF THE DENSITY OF A MAGNETIZED PLASMA COLUMN USING A RESONANT CAVITY TECHNIQUE	
A.W.Koch, K.D.Landes, G.Seeger	770
LOCAL DRIFT IN RECOMBINING PLASMA JETS	
P.Lasgorceix, M.A.Dudeck, J.P.Caressa	772
ELECTRON AND ION CONCENTRATIONS IN A RAREFIED NITROGEN PLASMA JET	
P.Tardy and M.A.Dudeck	774
A MHD METHOD FOR MEASURING THE GAS VELOCITY OF A PLASMATRON JET	
G.Dilecce, S. de Benedictis, M.Capitelli and C.Gorse	776
ON THE PRESENCE OF FAST ELECTRONS IN RF DISCHARGES: LANGMUIR PROBE MEASUREMENTS	

SUBJECT AREA 2.

WAVES AND INSTABILITIES

S. I. Popel and V. N. Tsytovich GENERATION OF CURRENTS DRIVEN BY THE LOWER-HYBRID WAVES AND THE RADIATIVE-RESONANT INTERACTIONS	778
A. D. Shapiro ON ION-ACOUSTIC INSTABILITY OF HIGH-CURRENT DISCHARGE PLASMA IN ION-LASERS	780
A. Fasoli, F. Anderegg, T. N. Good, P. J. Paris, F. Skiff, M. Q. Tran and M. Yamada OPTICAL DIAGNOSIS OF KINETIC EFFECT IN ION ACOUSTIC WAVE-PARTICLE INTERACTIONS	782
G. A. Galechyan, A. R. Aramian, R. G. Divanian and E. G. Divanian EFFECT OF THE ACOUSTIC WAVES ON THE GAS DISCHARGE PLASMA PARAMETERS	784
D. Ž. Gajić and B. S. Milic ON THE KINETIC THEORY OF THE ELECTROSTATIC ION-CYCLOTRON INSTABILITY IN COLLISIONLESS PLASMAS PLACED IN CONSTANT AND NON-PARALLEL ELECTRIC AND MAGNETIC FIELDS	786
Zh. Kiss'ovski, A. Shivarova, T. Stoychev and E. Tatarova INTERACTION OF LOW-FREQUENCY DRIFT WAVE INSTABILITY WITH TRIVELPIECE-GOULD MODE	788
Zh. Kiss'ovski, A. Shivarova, T. Stoychev and E. Tatarova LOW-FREQUENCY DRIFT WAVE INSTABILITY IN CURRENT-CARRYING MAGNETIZED PLASMA	790
A. M. Repin, E. B. Tikhomirova and G. G. Shishkin INTERRELATION OF PLASMA INSTABILITIES AND EXTERNAL ELECTROMAGNETIC FIELDS	792
M. Senduloviciu and E. Lozneau QUANTUM PROCESSES AT THE ORIGIN OF ENERGY RESERVOIRS FOR PLASMA INSTABILITIES	794
N. Dumitrasescu, G. Popa SO CALLED ECHO AS A FEEDBACK MECHANISM FOR IONIZATION INSTABILITY	796
I. M. Rutkevich TIME-DEPENDENT PROPAGATION AND STABILITY OF IONIZATION WAVES IN AN EXTERNAL ELECTRIC FIELD	798

D. Alexandroaei, K. Ohe, M. Sanduloviciu	800
STABLE AND UNSTABLE DOUBLE LAYER STRUCTURES IN NITROGEN DISCHARGE PLASMA	
M. Sanduloviciu and L. Chiran	802
PERIODICAL PROCESSES MAINTAINED BY UNSTABLE DOUBLE LAYERS FORMED IN "COLLISIONLESS" PLASMA	
D. Ruscanu, G. Popa, D. Alexandroaie	804
EXCITATION OF ION-ACOUSTIC WAVES BY BIPOLAR POTENTIAL STRUCTURES	
L. P. Pasechnik, V. B. Rubtsov	806
AFFECT OF SELF - CONSISTENT ELECTROSTATIC FIELD ON CYCLOTRON RESONANCE IN WARM PLASMA	
V. D. Dougar-Jabon, B. A. Kondratov, D. V. Krasovitskii and S. S. Moiseev	808
REVERSION OF LANDAU DAMPING IN INHOMOGENEOUS PLASMA WITH OVERTHERMAL ELECTRONS	
S. P. Karnilovich, V. P. Milantiev	810
ON CYCLOTRON DAMPING OF LONGITUDINAL WAVE	
G. M. Batanov, A. E. Petrov, K. A. Sarksyjan, N. N. Skvortsova	812
ION WAVE EXCITATION THROUGH THE OBLIQUE LENGMUIR WAVES BEATING IN MAGNETIZED PLASMA	
E. Tatarova	814
EEDF IN THE FIELDS OF IONIZATION AND HIGH-FREQUENCY SLOW EM WAVES	
B. B. Slavin, P. I. Sopin	816
ON THE THEORY OF FORMATION AND PROPAGATION OF IONIZING WAVES OF POTENTIAL GRADIENT IN GASES	
S. A. Dvinin, A. A. Kuzovnikov	818
PLANE IONIZATION WAVES, CAUSED BY DIFFUSION, IN HIGH FREQUENCY FIELD	
K. Ohe and T. Kimura	820
TIME-RESOLVED MEASUREMENTS OF ELECTRON ENERGY DISTRIBUTION FUNCTION IN EXTERNALLY-EXCITED IONIZATION WAVES	
A. C. Saxena and V. K. Rohatgi	822
ORDINARY-WAVE PROPAGATION IN WEAKLY RELATIVISTIC MIRROR-CONFINED PLASMAS	
G. M. Korchinsky, I. V. Krivtsun, I. P. Yakimenko, A. G. Zagorodny	824
RADIATION OF ELECTROMAGNETIC WAVES BY INHOMOGENEOUS PLASMAS	
V. B. Gildenburg, V. A. Krupnov, V. E. Semenov	826
FREQUENCY AUTOCONVERSION AND REFLECTIONLESS PROPAGATION OF A POWERFUL ELECTROMAGNETIC PULSE IN AN IONIZING MEDIA	

B.Stanić and J.Cvetić RADIOFREQUENCY SPECTRA OF LIGHTNING ELECTROMAGNETIC PULSE	828
S.Suganomata, I.Ishikawa and M.Matsumoto AN ANODE DIRECTED FAST WAVE IN CF ₄ POSITIVE COLUMN	830
P.A.Bagryansky, A.A.Ivanov, V.V.Klesov, Yu.L.Kozminykh, Yu.I.Krasnikov, A.I.Rogozin, G.V.Roslyakov, Ya.A.Tsidulko STORAGE AND DECAY OF WARM PLASMA IN GDT	832
A.B.Bud'ko, F.S.Felber, A.I.Kleev, M.A.Liberman, A.L.Velikovich STABILITY ANALYSIS OF DYNAMIC Z PINCHES AND θ PINCHES	834
M.Sanduloviciu, C.Gavrilescu, V.Melnig OSCILLATION BEHAVIOUR OF DC DISCHARGES IN OXYGEN	836
M.Ghoranneviss, M.Moradshahi, and A.Shahvarani COLLISIONLESS ARGON PLASMA PRODUCED BY A DUO PLASMATRON SOURCE	838
A.I.Kleev, A.L.Velikovich EVOLUTION OF PERTURBATIONS DUE TO BULK AND SURFACE HYDROMAGNETIC INSTABILITIES FOR DYNAMIC PINCHES	840
Sh.M.Khalil and B.F.Mohamed RADIATION AT COMBINATION FREQUENCIES FROM ANISOTROPIC PLASMA LAYER	842
P.J.Paris, F.A.Anderegg, A.Fasoli, T.N.Good, N.Rynn, F.Skiff, R.A.Stern and M.Q.Tran UPGRADED BARIUM PLASMA Q-DEVICE SUITABLE FOR WAVE STUDIES	844
A.P.Ershov, S.V.Klishin, S.E.Ponomareva, Yu.P.Pytev INTERPRETATION OF MW INTERFEROMETER MEASUREMENT OF SHOCK WAVES IN A WEAKLY IONIZED PLASMA	846

SUBJECT AREA 10.

IONIZATION GROWTH AND TRANSITION TO BREAKDOWN

T. Hosokawa and Y. Sekiya	848
PRE-BREAKDOWN MECHANISMS IN A UNIFORM AND A NON-UNIFORM FIELD GAPS IN SF ₆ GAS	
Y. Kavada and T. Hosokawa	850
BREAKDOWN PHENOMENA OF GAS-INSULATED GAPS WITH NANOSECOND PULSES	
M. Saeki and Y. Goshō	852
EFFECT OF A DESICCANT ON THE STATISTICAL TIME LAGS OF A SPHERE GAP IN SF ₆ GAS	
C. E. Little and A. Maitland	854
ELECTRICAL BREAKDOWN IN PROPANE/AIR FLAMES	
D. Raghavender and M. S. Naidu	856
A STUDY OF LIGHTNING IMPULSE BREAKDOWN AND COST ANALYSIS OF TERNARY GAS MIXTURES (SF ₆ /CCl ₂ F ₂ /N ₂)	
E. S. Livingstone and A. Maitland	858
BREAKDOWN VOLTAGES OF ATTACHING GAS MIXTURES IN METAL SEGMENTED TUBES	
K. Ando and H. Fujita	860
DYNAMIC PROCESS OF LOW PRESSURE DISCHARGE THRESHOLD WITH ELECTRON BEAM INJECTION	
C. C. Goodyear and S. E. Božin	862
HYSTERESIS IN A LOW PRESSURE DISCHARGE IN CROSSED ELECTRIC AND MAGNETIC FIELDS	
Yong-Ho Oh, Nak-Heon Choi and Duk-In Choi	864
A CONTINUUM MODEL OF RF GLOW DISCHARGE	
M. Bobrowski, T. Z. Kowalski and K. W. Ostrowski	866
LOW PRESSURE SQS DISCHARGE IN Ar - ISOPENTANE MIXTURE	
B. M. Jelenković and A. V. Phelps	868
IONIZATION AND EXCITATION IN Ne DISCHARGES AT VERY HIGH E/n	
T. Fujiwara and K. Sugita	870
EXPERIMENT ON FORMATION PROCESS OF TOROIDAL DISCHARGE IN H ₂ , He AND N ₂	

Yu. B. Golubovsky, D. G. Stoyanov, V. M. Telezhko IONIZATION PROCESSES WITH PARTICIPATION OF VIBRATIONALLY EXCITED MOLECULES OF N ₂	872
V. N. Sharaevsky, I. V. Bozhko DEVELOPMENT OF IONIZATION AND TRANSITION TO BREAKDOWN IN ARGON AT TEMPERATURES UP TO 2000 K	874
M. V. Sokolova A DISCHARGE IN HELIUM-AIR MIXTURES AT HIGH TEMPERATURE	876
G. Graham and R. Roussel-Dupré AIR BREAKDOWN IN THE RELATIVISTIC LIMIT	878
I. Pérès, P. Ségur and J. P. Boeuf NUMERICAL MODELLING OF SPACE CHARGE EFFECT IN CYLINDRICAL PROPORTIONAL COUNTERS	880
M. Hemmati and R. G. Fowler NUMERICAL SOLUTION OF THE ELECTRIC BREAKDOWN WAVES	882
V. Meleshko and V. Schweigert MATHEMATICAL MODEL OF THE DISCHARGE ALONG A LASER SPARK	884
M. Černák and T. Hosokawa TRANSITION BETWEEN TOWNSEND AND POSITIVE TRICHEL STREAMER MECHANISMS FOR INITIAL STAGES OF DISCHARGE DEVELOPMENT IN SHORT NEGATIVE POINT-TO-PLANE GAP	886
E. E. Chemerisova, B. U. Kuzin THE DISCHARGE EVOLUTION MECHANISMS IN THEW UNDER- -THRESHOLD ELECTROMAGNETIC FIELD	888
Yu. B. Golubovskii, V. I. Kolobov, V. O. Nekuchaev, I. E. Suleimenov IONIZATION WAVES IN THE NEON DISCHARGE UNDER MEDIUM PRESSURES	890
L. J. Kelly and H. A. Blevin MONTE-CARLO STUDIES OF THE ANODE BOUNDARY REGION OF A TOWNSEND DISCHARGE	892
Ya. F. Volkov, V. G. Dyatlov, V. A. Kiyashko, E. A. Kornilov and N. I. Mitina INVESTIGATION OF PLASMA AND ATOMIC FLUXES PRODUCED BY LASER EVAPORIZATION OF MATERIALS	894
Gao Shu Xiang, Ouyang Xiton INFLUENCE OF THE TUBE WALL ON GAS IONIZED VOLTAGE	896
Y. Ling BREAKDOWN CHARACTERISTICS OF AC SILENT DISCHARGE	898
V. B. Gildenburg, I. S. Guschin, S. A. Dvinin, A. V. Kim DYNAMICS OF HIGH-FREQUENCY STREAMER	900

A. E. Vlastós	902
BREAKDOWN VOLTAGE OF A GASEOUS DIELECTRIC. A PHYSICAL APPROACH	

S. I. Andreev	904
TO A THEORY OF LIGHTNING	

SUBJECT AREA 4.

INTERACTIONS OF PLASMAS WITH ELECTRON, ION AND NEUTRAL BEAMS, INCLUDING FREE ELECTRON LASERS

Sh. M. Khalil and N. G. Zaki	906
RELATIVISTIC ELECTRON BEAM HEATING OF INHOMOGENEOUS ANISOTROPIC PLASMA	

M. Y. El-Achry and R. N. El-Sherief	908
ELECTRON-ACOUSTIC WAVES IN A BEAM-PLASMA SYSTEM	

V. E. Lapshin, A. P. Mezentsev, A. S. Mustafaev	910
ELECTRON MOMENTUM RELAXATION IN NON-COLLISIONAL BEAM PLASMA	

D. M. Karfidov, A. M. Rubenchik, K. F. Sergeichev and I. A. Sychov	912
STRONG LANGMUIR TURBULENCE EXCITED BY AN ELECTRON BEAM IN PLASMA	

L. Y. Kochmaryov, A. D. Mayorov, A. I. Chmil and E. G. Shustin	914
THREE-DIMENSIONAL ELECTRON BEAM RELAXATION IN A BEAM - PLASMA DISCHARGE IN THE ABSENCE OF A CONFINING MAGNETIC FIELD	

L. Y. Kochmaryov, A. I. Chmil, E. G. Shustin	916
THE ROLE OF EXTERNAL AND INTRINSIC FEEDBACK IN THE BEAM-PLASMA DISCHARGE FORMATION	

L. Y. Kochmaryov, A. I. Chmil and E. G. Shustin	918
ON THE STRUCTURE AND MECHANISM OF RF TURBULENCE IN A BEAM-PLASMA DISCHARGE	

Y. Nishida and T. Shinozaki	920
RESONANT ACCELERATION OF INJECTED ELECTRONS IN MICROWAVE-PLASMA INTERACTION EXPERIMENTS	

B. A. Alterkop, A. A. Ruchadze, A. Yu. Sokulin, V. P. Tarakanov	922
FORMATION OF A VIRTUAL CATHODE AND MICROWAVE GENERATION BY AN ANNULAR ELECTRON BEAM	

G. Venugopala Rao, A.S.Paithankar, S.K.Iyyengar and V.K.Rohatgi PROPAGATION OF RELATIVISTIC ELECTRON BEAM IN HYDROGEN GAS AND PLASMA	924
N.A.Djatko, I.V.Kochetov, A.P.Napartovich ABSOLUTE NEGATIVE CONDUCTIVITY OF LOW TEMPERATURE PLASMA PRODUCED BY AN ELECTRON BEAM	926
A.M.Borodin, V.A.Gurashvili, V.M.Shashkov, E.Yu.Schekotov and Ph.I.Vysikailo SMALL IMPURITIES INFLUENCE ON CHARACTERISTICS OF ELECTRON-BEAM STABILIZED ELECTRIC DISCHARGE IN NITROGEN AT CRYOGENIC TEMPERATURE	928
T.Kasuya, M.Tanaka, A.Komori and Y.Kawai OBSERVATIONS OF SUBHARMONICS IN AN ELECTRON BEAM- -PLASMA SYSTEM	930
A.I.Rogashkova, I.A.Kelechsaeva INFLUENCE OF MODULATED ELECTRON BEAM SPACE-CHARGE WAVES ON THE INTERACTION WITH LANGMUIR WAVE IN A PLASMA	932
Yu.P.Bliokh and V.V.Mukhin ELECTRON ACCELERATION BY SPACE CHARGE WAVES EXCITED BY ION BEAMS IN AN INHOMOGENEOUS PLASMA	934
M.A.Zavjalov, L.A.Neganova, V.I.Perevodchikov, V.N.Tshai ELECTRON BEAM PLASMA IN THE NARROW CONDUCTING CHANNEL	936
V.I.Karas', V.V.Mukhin, A.M.Naboka A NONLINEAR THEORY OF ION BEAM COMPENSATION IN MAGNETICALLY-INSULATED ACCELERATING SYSTEMS	938
P.A.Bagryansky, A.A.Ivanov, V.V.Klesov, Yu.L.Kozminykh, Yu.I.Krasnikov, A.I.Rogozin, G.V.Roslyakov, Yu.A.Tsidulko FORMATION OF POPULATION OF SLOXING IONS IN A GAS DYNAMIC TRAP	940
V.I.Karas', V.A.Kiyashko, E.A.Kornilov and Ya.B.Fainberg INVESTIGATIONS OF A NEUTRALIZED ION INDUCTION LINAC FOR INERTIAL CONFINEMENT FUSION	942
M.Gryziński, J.Stanisławski, W.Komar INTERACTION OF HIGH DENSITY ION BEAMS WITH GASEOUS TARGETS	944
C.Fleurier, A.Sanba, D.Hong, J.Pellicer, J.Mathias, D.Gardes, R.Bimbot, A.Servajean, M.F.Rivet, M.Dumail, B.Kubica, A.Richard, C.Deutsch and G.Maynard HYDROGEN PLASMA STOPPING POWER FOR HEAVY-ION BEAMS	946
Tu Khiet NONLINEAR CALCULATION OF THE STOPPING POWER IN A HOT ELECTRON GAS	948

S.R.Krstić and B.S.Milić	950
NON-RESONANT LONGITUDINAL BEAM INSTABILITY IN AN ACTIVE PLASMA	
A.E.Petrov and N.N.Skvortsova	952
THE DETAILED STRUCTURE OF ION-SOUND STATIONARY TURBULENCE IN BEAM-PLASMA INTERACTION	
M.Ghoranneviss, M.Moradshahi and A.Abaspour	954
ION BEAM GENERATED STABLE PLASMA IN THE PRESENCE OF MAGNETIC FIELD	
S.H.Kim	956
STIMULATED BREMSSTRAHLUNG OF SOFT X-RAY IN A TWO-BEAM WAKE-FIELD CAVITY	
S.H.Kim	958
THE NET DC FORCE ACTING ON HIGH-ENERGY ELECTRON BEAMS WITH SMALL ENERGY SPREADS BY NET INVERSE BREMSSTRAHLUNG OF A LASER WAVE IN ISOTROPIC TURBULENT PLASMA WAVES	
S.H.Kim	960
FREE ELECTRON LASING IN A MAGNETIC WIGGLER	
S.H.Kim	962
FORMULATION OF THE WAKE-FIELD IN THE PERIODIC CAVITY BY A MODAL ANALYSIS	
N.S.Ginzburg and A.S.Sergeev	964
COLLECTIVE STIMULATED RADIATION OF SPACE LOCALIZED ENSEMBLES OF ELECTRONS-OSCILLATORS: CANALIZATION AND SUPERRADIANCE EFFECTS	
M.S.Jovanović and M.M.Škorić	966
ON A NONSTATIONARITY OF STIMULATED SCATTERING OF ELECTROMAGNETIC RADIATION IN A PLASMA	
Lj.M.Stokić	968
ON THE EQUATIONS FOR THE GROWTH RATE COEFFICIENTS IN THE FREE ELECTRON LASER (FEL)	
I.G.Persiantsev, S.P.Rebrick and N.V.Suetin	970
COMPUTER SIMULATION OF ELECTRON DISTRIBUTION FUNCTION IN E-BEAM GENERATED Ne/Xe PLASMA	
M.G.Nikulín, S.V.Vladimirov and S.V.Zatsepin	972
SELF-OSCILLATIONS IN BEAM-PLASMA DISCHARGE WITHOUT MAGNETIC FIELD	
A.F.Alexandrov, S.Yu.Galuzo, V.A.Kubarev, V.V.Mikheyev, V.A.Pletjushkin, V.Yu.Sergiyenko, O.B.Yesikova	974
HIGH CURRENT ELECTRON BEAM TRANSPORTATION IN RELATIVISTIC CERENKOV GENERATOR	

SUBJECT AREA 11.
LOW PRESSURE GLOWS

J. Konefa, P. P. Samtsonov, A. V. Krauklis, N. A. Fomin PULSED DC GLOW DISCHARGE IN THE TRANSVERSE SUPERSONIC GAS FLOW-EXPERIMENTAL INVESTIGATIONS	976
K. Sahli, A. M. Pointu STUDY OF THE FLOWING OF AN OXYGEN ELECTRON BEAM GENERATED PLASMA	978
V. N. Sidelnikov NON-MONOTONOUS CHANGE OF POTENTIAL IN NEAR ELECTRODE OF LOW-VOLTAGE DISCHARGE	980
V. A. Zherebtsov, M. A. Lebedev, A. A. Sobolev and V. D. Talanova LOW-VOLTAGE DISCHARGE IN ALKALI METALS WITH ADMIXTURE OF MOLECULAR GASES	982
N. L. Bashlov, V. M. Milenin, G. Yu. Panasjuk, N. A. Timofeev THE APPLICATION OF THE GAS DISCHARGE SIMILARITY FOR THE PLASMA RESEARCH	984
S. V. Korobtsev, D. D. Medvedev, V. D. Rusanov ON EXISTENCE RANGE OF CRITICAL IONIZATION VELOCITY PHENOMENON IN PLASMA CENTRIFUGE	986
Yu. S. Akishev, A. M. Volochek, A. P. Napartovich, N. A. Sokolov and N. I. Trushkin ON THE PROPAGATION OF HIGH-CONDUCTING PLASMA CHANNEL IN A NONLINEAR MEDIUM OF SELF-SUSTAINED GLOW DISCHARGE	988
M. Toma, M. Sanduloviciu SIMILARITIES BETWEEN DOUBLE LAYERS FORMED IN LABORATORY AND SPACE MAGNETIZED PLASMAS	990
V. I. Miljević and B. A. Aničin ON THE MECHANISM OF THE HOLLOW ANODE DISCHARGE	992
S. Hashiguchi CALCULATIONS FOR THE ELECTRON ENERGY DISTRIBUTION FUNCTION IN A CYLINDRICAL HOLLOW CATHODE	994
T. Arai, H. Akiba, K. Nihira and T. Iijima CURRENT-VOLTAGE CHARACTERISTICS OF MODIFIED HOLLOW CATHODE DISCHARGE WITH INSERTING INSULATOR	996
A. G. Zhiglinsky, N. R. Izmailova, G. G. Kund, A. O. Morozov and A. N. Samokhin INVESTIGATION OF MASS-TRANSFER PHENOMENA IN HOLLOW CATHODE DISCHARGE	998

M.E. Abdel-Aziz, M.M. Masoud, F.W. Abdel-Salam and A.G.H. Helal GLOW DISCHARGE PARAMETERS IN ELECTROSTATIC ION SOURCE	1000
L. Biborosch, G. Popa and M. Sanduloviciu LOCAL TRANSVERSE MAGNETIC FIELD INFLUENCE ON THE COLUMN HEAD INSTABILITY IN A HELIUM D.C.-DISCHARGE	1002
P. Bayle, A. Perrin MIXED MACROSCOPIC-MICROSCOPIC FORMULATION FOR THE SPATIO-TEMPORAL INCEPTION OF CATHODE REGION	1004
M. K. Radović ON THE $N_2(A)$ METASTABLE CONCENTRATION DISTRIBUTION IN A GAS DIODE TUBE	1006
K. Teplanova SPACE-CHARGE SHEATH CHARACTERISTICS IN FRONT OF A FLOATING WALL IN A POSITIVE GLOW DISCHARGE COLUMN	1008
C. Cohen, Yu. M. Kagan and P. Avivi THE NEGATIVE GLOW IN A MAGNETIC FIELD IN A HELIUM DISCHARGE	1010
S. Suzuki, K. Hayashi, E. Noda, O. Morimiya EXPERIMENTAL INVESTIGATION OF PULSED GLOW DISCHARGE IN XENON	1012
T. Kaneda, T. Kubota and Jen-Shih Chang AXIAL ELECTRIC FIELD IN A MEDIUM PRESSURE He- N_2 MIXTURE GAS RECTANGULAR TUBE POSITIVE COLUMN PLASMA	1014
A. A. Deryugin, I. V. Kochetov, A. F. Pal', A. V. Rodin, A. V. Filippov GAS TEMPERATURE EFFECT ON A NON-SELF-SUSTAINED DISCHARGE GLOW	1016
R. N. Franklin and P. G. Daniels THE POSITIVE COLUMN IN ELECTRONEGATIVE GASES - A BOUNDARY LAYER APPROACH	1018
V. A. Schweigert and I. V. Schweigert SELF-CONSISTENT CALCULATION OF CATHODIC ZONE OF SELF-SUSTAINED GLOW DISCHARGE IN INERT GASES USING MONTE-CARLO METHOD	1020
R. Sonnenburg, H. Gündel and K. Schmidt NUMERICAL DESCRIPTION OF FLUORESCENT LAMP PLASMAS MAINTAINED BY AN AC SUPPLY	1022
B. Eliasson and W. Egli THE SILENT DISCHARGE NUMERICAL SIMULATION OF MICRODISCHARGE FORMATION	1024

U.Chittka	1026
INFLUENCE OF AR EXCITATION ON THE PROPERTIES OF HIGHLY LOADED LOW-PRESSURE HG-AR DISCHARGES	
E.I.Toader, V.N.Covlea and C.V.Zoitzu	1028
CHARGE CARRIER GAIN AND LOSS IN AN ARGON CONTRACTED POSITIVE COLUMN	
I.Iova, D.Ciobotaru, G.Dima, I.Chera, M.Bazavan	1030
ATOMIC ENERGY LEVELS EXCITATION IN He-Ne GAS MIXTURES CYLINDRICAL HOLLOW CATHODE PLASMA IN GLOW AND TRANSIENT GLOW-ARC WORKING PHASES	