

TOPIC 09 BREAKDOWN, SPARK DEVELOPMENT, TOWNSEND AND CORONA DISCHARGES

F. Lutz, F.Y. Chu	
IMPULSE BREAKDOWN OF A ROD - ROD GAP IN SF ₆ SHIELDED WITH PARALLEL INSULATING BARRIERS	110
G. Dragan, I. Baran, T.E. Allibone, D. Dring	
SPARKOVER OF A ROD/ROD GAP STRESSED WITH IMPULSE VOLTAGES OF NON-STANDARD WAVE-SHAPE II INFLUENCE OF HUMIDITY	112
J. Dutton, W.T. Williams, R. Le Ny	
THE ELECTRICAL BREAKDOWN OF NITROGEN AT APPLIED UNIFORM FIELD STRENGTH GREATER THAN 10 ⁶ Vm ⁻¹	114
A.J. Davies, J. Dutton, J. Jarvis, E.O. Selim, R.T. Waters	
IMPULSE BREAKDOWN OF SPHERE-PLANE GAPS IN DRY AIR AT PRESSURES IN THE RANGE ONE QUARTER TO TWO ATMOSPHERES	116
I. Ursu, D. Apostol, I. Apostol, D. Crăciun, M. Dinescu, I.N. Mihăilescu V. Stăncălie, A.M. Prokhorov, V.I. Konov, A.V. Silenok	
ON THE EVOLUTION OF A BREAKDOWN PLASMA INDUCED IN AIR IN FRONT OF A METALLIC TARGET BY MICROSECOND PULSED TEA-CO ₂ LASER RADIATION	118
B.M. Kovalchuk, V.A. Lavrinovitch, G.A. Mesyats, V.G. Podkovirov, Yu.F. Potalitsin	
BREAKDOWN IN NITROGEN AND IN ITS MIXTURES WITH O ₂ AND SF ₆ IN A STRONGLY NONUNIFORM ELECTRIC FIELD AT NANOSECOND VOLTAGE PULSING	120
T. Govindanunny, A. Maitland	
ELECTRICAL BREAKDOWN IN He-F ₂ AND He-SF ₆ MIXTURES	122
W. Schmidt, J. Freisinger, H.W. Loeb	
ON THE BREAKDOWN BEHAVIOUR OF THE RF-ION SOURCES RIG 10 AND RIG 20	124
W. Mosch, W. Exner, J. Speck, W. Hauschild	
CALCULATION OF THE A.C.BREAKDOWN VOLTAGE OF SF ₆ INSULATIONS TAKING THE AREA EFFECT INTO ACCOUNT	126
W. Hauschild, M. Dietrich, W. Mosch, E. Lemke	
AREA AND TIME EFFECT FOR THE STREAMER INCEPTION FIELD STRENGTH IN AIR	128
I.W. McAllister, A. Pedersen	
PASCHEN'S LAW AND THE PREDICTION OF DISCHARGE ONSET LEVELS IN STRONGLY ELECTRONEGATIVE GASES AND GAS MIXTURES	130
A. Ernest, S.C. Haydon	
INVESTIGATION OF THE QUENCHING MECHANISMS CONTROLLING METASTABLE PARTICLE CONTRIBUTIONS TO PRE-BREAKDOWN IONIZATION IN PURE N ₂	132
L.G. Christophorou, R.A. Mathis, D.R. James	
ISOTOPE DEPENDENCE OF THE BREAKDOWN STRENGTH OF GASES	134
E.I. Asinovski, V.V. Markovets, A.B. Matsenko	
EXPERIMENTAL STUDY OF BREAKDOWN AT VOLTAGES UP TO 300 kV	136
N.A. Koshilev, A.V. Mikhalev, N.A. Strokin, A.A. Shishko	
THE INITIAL STAGE OF BREAK-DOWN IN A ONE-TURN SOLENOID	138

TOPIC 09

Y. Funato, I. Sakamoto, S. Kitajima, H. Watanabe, S. Nagao THE GAS BREAKDOWN AND PLASMA FORMATION IN A NON-PLANAR STELLARATOR	140
G.C. Crichton, S. Vibholm BREAKDOWN VOLTAGE ESTIMATION AND TIME-LAGS UNDER CORONA STABILIZATION IN COMPRESSED SF ₆	142
V.A. Burtsev, L.A. Zelenov, I.L. Kamardin, A.A. Kuchinsky, R.F. Kurunov, V.A. Rodichkin, V.G. Smirnov, V.F. Shansky STUDY OF THE SELF-SUSTAINED PULSE DISCHARGE IN MOLECULAR GASES BY HOLOGRAPHIC INTERFEROMETRY METHOD	144
W.W. Byszewski, M.J. Enright, J.M. Proud NET IONIZATION RATES MEASURED BY TRANSIENT TECHNIQUES	146
E.I. Asynovsky, V.V. Markovets, A.M. Ulianov THE SPATIO-TEMPORAL LUMINOUS PICTURE OF THE BREAKDOWN WAVE	148
L. Niemeyer POSITIVE LEADER PROPAGATION IN SF ₆	150
G.A. Woolsey, H.S.B. Swan SOME ASPECTS OF LONG PATH BREAKDOWN AND DISCHARGE DEVELOPMENT IN LOW PRESSURE SF ₆	152
D.A. Parfeniuk, F.L. Curzon, M. Feeley ELECTRODELESS BREAKDOWN WITH PRE-BREAKDOWN CURRENT-FLOW	154
K.A. Klimenko, A.V. Kozyrev, Yu.D. Korolev, G.A. Mesyats, Yu.N. Novoselov FORMATION OF A NANOSECOND VOLUME DISCHARGE WITH ULTRA-VIOLET RADIATION PREIONIZATION	156
J. Dutton, W.M.M. Yunus, A.W. Williams IONIZATION GROWTH IN KRYPTON	158
J. Christiansen, K. Frank, H. Riege, R. Seeböck THE TRIGGERED PSEUDO-SPARK	160
L. Jacques, W. Bruynooghe, R. Bouciqué, W. Wieme MEASUREMENT OF THE SPATIAL AND TEMPORAL CURRENT GROWTH IN HYDROGEN	162
J. Dupuy, A. Gibert, R. Peyrous, G. Schreiber FILAMENTS AND THEIR ROLE IN SPARK FORMATION	164
P. Domens, J. Dupuy, A. Gibert, B. Hutzler, J.P. Riu PHYSICAL PROPERTIES OF LEADERS IN LARGE AIR GAP DISCHARGES	166
H. Korge, M. Laan DEVELOPMENT OF DISCHARGE IN PURE NITROGEN	168
N. Sato, S.C. Haydon SPATIO-TEMPORAL SPECTROSCOPY OF PULSED R.F. CORONA IN AIR AND NITROGEN	170
A.E. Vlastós POSITIVE DC CORONA IN AIR AND SF ₆	172
V.N. Maller, K.D. Srivastava EFFECT OF INSULATOR ON CORONA DISCHARGE PHENOMENA IN SF ₆ UNDER SWITCHING IMPULSE	174

TOPIC 09 / TOPIC 13

G.C. Crichton, W.T. Williams	
INFLUENCE OF ELECTRODE RADIUS OF CURVATURE ON THE TEMPORAL CHARACTERISTICS OF THE ELECTRON AVALANCHE TO CORONA TRANSITION	176
O. Yamamoto, C. Uenosono, T. Kouno, M. Hayashi	
CORONA DETECTION BY THE USE OF A ELECTROSTATIC PROBE	178
S.C. Haydon, N. Sato	
NANOSECOND IMAGE-INTENSIFIER STUDIES OF PULSED R.F. CORONA IN AIR AND NITROGEN.	180
R.S. Sigmond, J. Skalný	
EXTRACTION OF NEGATIVE IONS FROM NEGATIVE CORONA DISCHARGE	182
M. Černák, J. Skalný	
THE TIME DEPENDENCE OF NEGATIVE CORONA CURRENT AND CORONA TRICHEL PULSES	184
H.K. Buttar	
CATHODE SHEATH PARAMETERS	186
H. Fujita, S. Yagura, T. Ōshige	
DISCHARGE THRESHOLD AND SPACE CHARGE DISTRIBUTIONS WITH ELECTRON BEAM EMISSION INTO A WEAKLY IONIZED GAS	188
V.V. Minin, B.P. Yatsenko	
THE INFLUENCE OF X-RADIATION ON THE SEMI-SELF-SUSTAINED DISCHARGE FORMATION	190
TOPIC 13 DISCHARGES FOR LASERS	
V.G. Gudelev, V.M. Yasinski	
ON LASER RADIATION GAIN DISTRIBUTION ALONG THE He-Ne GAS DISCHARGE POSITIVE COLUMN	192
J. Badziak, A. Gałkowski, A. Kalbarczyk, Z. Kurzyński	
PUMPING PROCESS MODELLING IN ELECTRICAL DISCHARGES FOR CO ₂ PULSED AMPLIFIERS; CALCULATIONS AND MEASUREMENTS	194
E.P. Bochkar', A.I. Zakharov, S.N. Polyakov, A.T. Rakhimov, V.A. Samorodov, A.P. Sokolov	
EFFECT OF THE UV-PREIONIZATION ON CHARACTERISTICS OF THE VOLUME-DOMINATED DISCHARGE IN NITROGEN	196
G.V. Gadiyak, I.V. Travkov, V.A. Schveigert	
ON INITIATION OF THE SELF-SUSTAINED GLOW DISCHARGE	198
A.A. Kuchinsky, B.V. Ljublin, V.F. Shansky, V.A. Sheverev	
EFFECT OF LOW-IONIZATION POTENTIAL ADDITIVES ON POPULATION OF C ³ π _u AND B ³ π _g NITROGEN ELECTRON LEVELS IN A PULSED SELF-SUSTAINED DISCHARGE	200
H. Guendel, A. Harendt, J. Irmer, W. Ross, K. Seliger, H. Volkmann	
MODEL CALCULATION AND EXPERIMENTS ON LASER DISCHARGES IN NITROGEN	202
N.V. Karlov, G.P. Kuz'min, A.M. Prokhorov	
NON-SELF-SUSTAINED DISCHARGE WITH A PLASMA CATHODE	204

TOPIC 13 / TOPIC 06

V. Miljević

SOME CHARACTERISTICS OF THE HOLLOW CATHODE MAGNETRON DISCHARGE 206

S. Sinman, A. Sinman

SOME OPERATIONAL CHARACTERISTICS OF A PULSED Ar^{3+} LASER 208

J. Mizeraczyk, M. Neiger

DIVISION OF CURRENT IN A SLOTTED HOLLOW-CATHODE DISCHARGE 210

J. Mizeraczyk, W. Urbanik, T. Abraham, M. Neiger

ELECTRON ENERGY DISTRIBUTION FUNCTION IN He-Kr MIXTURE FOR LASER
HOLLOW-CATHODE DISCHARGES 212

A. Siejca, M. Sarzyńska, T. Adamowicz

MEASUREMENTS OF DIFFUSION TIMES OF CU ATOMS IN A SLOTTED HCD CU II LASER 214

W. Kin-Hung, C.G. Morgan

POPULATION INVERSION MECHANISMS IN He-CD^+ HOLLOW CATHODE LASERS 216

P. Bletzinger

CHARACTERISTICS OF ELECTRON BEAM IONIZED DISCHARGES WITH ADDED ATTACHING
GASES 218

A. Luches, A. Perrone, A. Zecca

FORMATION AND DECAY OF KrXe^+ IN ELECTRON BEAM EXCITED RARE GAS MIXTURES 220

TOPIC 06 NONIDEAL PLASMAS (DENSE PLASMAS)

W. Ebeling

CORRELATIONS IN NONIDEAL PLASMAS 222

W. Stolzmann, W.D. Kraeft, I. Fromhold-Treu

THERMODYNAMIC FUNCTIONS OF DENSE HYDROGEN PLASMAS 224

K. Günther, R. Radtke

THE QUANTITATIVE CALCULATION OF THE ELECTRICAL CONDUCTIVITY OF HIGH
PRESSURE PLASMAS 226

D. Rusche, H. Jäger

ELECTRICAL CONDUCTIVITY OF A HIGH DENSITY CARBON PLASMA 228

L.N. Gorbunov, A.A. Eriomkin, P.P. Kulik, V.A. Riaby

DETERMINATION OF CONDUCTION ELECTRONS CONCENTRATION OF NON-IDEAL PLASMA BY
MEANS OF HALL EMF 230

E.K. Rozanov, P.P. Kulik, V.A. Riaby

EXPERIMENTAL STUDY OF NON-IDEALITY INFLUENCE ON ELECTRICAL CONDUCTIVITY
AND COMPOSITION OF DENSE ALKALI PLASMAS 232

B.N. Lomakin, A.D. Lopatin, V.E. Fortov

ELECTRICAL CONDUCTIVITY OF DENSE CESIUM PLASMA 234

V.E. Fortov, V.B. Mintsev, Ju.B. Zaporozhets

REFLECTION COEFFICIENT OF A LASER BEAM FROM A DENSE XENON PLASMA 236

V.A. Sechenov, V.N. Novikov

EXPERIMENTAL STUDY OF THE ABSORPTION COEFFICIENT OF A DENSE KRYPTON PLASMA 238

TOPIC 06 / TOPIC 08

J. Koceić, D. Djordjević, S. Popović	
INVESTIGATION OF ABSORPTION OF A CONTINUOUS RADIATION IN XENON PLASMA	240
V.M. Batenin, Yu.K. Kurilenkov, A.A. Valuev	
PLASMA OSCILLATIONS AND DISEQUILIBRIUM IN NONIDEAL PLASMA	242
K.G.H. Baldwin, D.D. Burgess	
LYMAN- α STUDIES IN DENSE, NON-DEBYE Z-PINCH PLASMAS	244
G. Decker, W. Kies, G. Pross, J. Rybach	
INITIATION OF PLASMA FOCUS DISCHARGES	246
R. Deutsch, W. Kies	
POLARISATION FIELD IN THE PLASMA-FOCUS DISCHARGE	248
W. Koziarkiewicz, W. Skrzeczanowski, R. Socha	
SPECTRAL MEASUREMENTS OF THE EARLY PHASES IN THE PLASMA-FOCUS DISCHARGE	250
S. Sinman, A. Sinman	
A STUDY OF REB OBSERVED FROM A DPF SYSTEM FOR DIFFERENT FOCUS PLASMAS	252
S.K. Händel, K. Melzacki	
SOME ASPECTS ON THE EXPLODING WIRE CURRENT PAUSE	254
Y.W. Kim, H.S. Lee, P.S. Sincerny	
TIME-RESOLVED TEMPERATURE MEASUREMENT FOR A PULSED HYDROGEN PLASMA CONFINED BY ULTRA DENSE NEUTRAL HYDROGEN	256
O.L. Landen, R.J. Winfield, D.D. Burgess, J.D. Kilkenny, R.W. Lee	
PRODUCTION OF NON-DEBYE PLASMAS BY LASER IONIZATION	258
TOPIC 08	ELECTRODE AND SURFACE EFFECTS (INCLUDING PLASMA-SURFACE INTERACTIONS, SURFACE TREATMENT, SHEATS)
H. Ehrich, J. Karlau, K.G. Müller	
INITIATION AND OPERATION OF A PLASMA INDUCED ARC	260
V.A. Sayenko, N.F. Kolomiets, N.N. Mashtalir	
ON NEW TYPE OF THE VACUUM ARC IN ANODE VAPOURS WITH A NON-SPENT CATHODE	262
V.A. Sayenko, A.I. Vladimirov, G.N. Veremeichenko	
DISCHARGES WITH THE ELECTRODE EVAPORATED IN VACUUM	264
U. Daybelge	
INDUCED ELECTRIC FIELD EFFECTS IN VACUUM AND UNIPOLAR ARCS	266
V.F. Puchkarev, D.I. Proskourovsky	
NONSTATIONARY PROCESSES IN A VACUUM ARC AT THRESHOLD CURRENTS	268
B.E. Djakov	
OHM'S LAW AND ION ACCELERATION IN THE CATHODE SPOT PLASMA OF METAL VAPOUR ARCS	270
E.K. Chekalin	
THE STRUCTURE OF MOVING CATHODE SPOTS IN A RAREFIED GAS	272

TOPIC 08

J.E. Daalder, J.C.A.M. Gordens	
VELOCITIES OF MACROPARTICLES GENERATED IN THE CATHODE SPOT REGION OF A VACUUM ARC	274
D.Y. Fang	
ON THE LATERAL SPREAD OF MOVING CATHODE SPOT OF VACUUM ARCS IN A TRANSVERSE MAGNETIC FIELD	276
G.A. Mesyats	
CONCERNING THE CYCLICITY OF THE PROCESSES IN A VACUUM-DISCHARGE CATHODE SPOT	278
A.V. Zharinov, Yu.V. Sanochkin	
ON THE MENISCUS FORM, AMPERE FORCE COMPENSATION AND RETROGRADE MOTION OF CATHODE SPOT	280
V.A. Eltekov, V.N. Samoylov, V.E. Yurasova, V.M. Bukhanov	
COMPUTER CALCULATION OF ANGULAR DEPENDENCE OF SPUTTERING FINE STRUCTURE	282
C.T. Fourrier	
ENERGY OF SPUTTERED ATOMS IN CATHODE GLOW	284
V.V. Vasil'ev, V.S. Vojtsenya	
MAGNETIC FIELD EFFECTS ON SURFACE SPUTTERING AND IMPURITY INFLUX INTO PLASMA	286
L.Ya. Min'ko, V.B. Avramenko, A.M. Kuzmitsky	
INVESTIGATION OF THE DYNAMICS OF ELECTRODE AND WALL PLASMA STRUCTURES IN IMPULSING SURFACE AND NEAR-SURFACE DISCHARGES	288
C. Piskor-Ignatowicz, L. Gabża	
MULTIPARAMETER ANALYSIS OF ARC CURRENT DENSITY ON THE ANODE	290
H. Yoshiyasu, S. Murata, J. Terachi, Y. Wada, Y. Murai	
EXPERIMENTAL STUDY ON THE INFLUENCE OF CURRENT DENSITY ON ELECTRODE WEAR	292
A.I. Bushik, M.K. Mitskevitch, V.A. Shilov, I.A. Bakuto	
ON THE NATURE OF DEVELOPING INTEGRAL EROSION TRACES ON CATHODE AT IMPULSE DISCHARGE ON BOUNDARY LINE BETWEEN METALS	294
B.A. Uryukov, V.I. Gorokhovskiy, V.P. Elovikov	
THE EXPANSION OF THE EROSION ARC PLASMA FLUX INTO VACUUM	296
P.N. Chistyakov, V.L. Shatohin	
REMOVAL OF AFTERDISCHARGE ELECTRON EMISSION BY TREATING ELECTRODES WITH GLOW DISCHARGE IN ARGON	298
M.V. Sokolova	
THE FIELD OF THE CHARGE ON THE DIELECTRIC SURFACE AFTER A DISCHARGE IN THE ADJOINING GAS GAP	300
G.G. Shishkin	
THE ANALYSIS OF DOUBLE LAYER CHARACTERISTICS IN UNHOMOGENEOUS GAS DISCHARGE	302
W.E. Han, R.N. Franklin	
STABILITY OF THE PLASMA SHEATH WITH SECONDARY EMISSION	304
S. Mercurio	
PLASMA SURFACE INTERACTION: CHARGE ACCRETION BY MASS ABLATION	306

TOPIC 08 / TOPIC 12

A.I. Bugrova, A.I. Morosov, V.K. Kharchevnikov NEAR-WALL CONDUCTION IN CLOSED DRIFT SYSTEMS	308
V.V. Vladimirov, A.N. Mosiyuk PARAMETRIC EXCITATION OF SHORT-WAVE CAPILLARY STRUCTURES AT THE LIQUID METAL SURFACE CONTIGUOUS TO AN UNSTABLE PLASMA	310
J. Kusz SOME PROPERTIES OF PLASMA GENERATED AT THE SURFACES OF FERROELECTRICS	312
C. Tesař, V. Kapička CAPACITIVELY COUPLED RADIO-FREQUENCY DISCHARGES	314
J.S. Chang, K.C. Spariosu SUBMICRON-DUST PARTICLE CHARGING CHARACTERISTICS IN A MAGNETO-PLASMA	316
A.S. Chernenko, V.D. Korolev, V.P. Smirnov, M.V. Tulupov, V.Ya. Tsarfin PLASMA FLOW DYNAMICS RESEARCH IN LOW-ASPECT RATIO INTENSE CURRENT DIODE	318
P. Tar Ortiz, M.V. Reyna EFFECT OF THE EXTRACTION ELECTRODE OPENING	320
C. Piskor-Ignatowicz, L. Gabža A MODEL OF ENERGY TRANSPORT FROM THE PLASMA TORCH TO THE WORKPIECE	322
TOPIC 12 BASIC PROCESSES OF LASER INDUCED DISCHARGES (GASEOUS AND SOLID TARGETS)	
A. Giulietti, D. Giulietti, M. Lucchesi, M. Vaselli LASER PRODUCED CONVERGING SHOCKS AND CONSEQUENT PLASMA EFFECTS IN GASES	324
B. Ahlborn, J. Kwan SHOCK WAVE GENERATION IN SOLID LASER TARGETS	326
D.Sh. Akramova, D.T. Alimov, P.K. Khabibullaev, V.K. Medvedeva NON-LINEAR IONIZATION OF THE BARIUM ATOM BY LASER RADIATION WITH 0.53 mkm WAVELENGTH	328
C. Carlhoff, E. Krametz, J.H. Schäfer, J. Uhlenbusch INVESTIGATION OF A LASER SUSTAINED DENSE HYDROGEN PLASMA	330
Y.E. Gamal, M. Abdel-Harith SECONDARY IONIZATION PROCESSES IN LASER INDUCED CASCADE IONIZATION	332
J.S. Bakos, I.B. Földes, P.N. Ignácz, Z. Sörlei CROSSED BEAM LASER PLASMAS	334
Z. Mucha, A. Baranowski AMPLIFICATION OF RADIATION IN CONTINUOUS OPTICAL DISCHARGE PLASMA	336
J. Meyer, J.E. Bernard, B. Hilko, H. Houtman, G. McIntosh, R. Popil OBSERVATION OF ENERGETIC ELECTRONS PRODUCED IN LASER IRRADIATED PLASMAS AT QUARTER CRITICAL DENSITY	338