

PROGRAMME

VIIIth International Workshop on Microwave Discharges: Fundamentals and Applications

September 10 – 14, 2012, Zvenigorod



RUSSIA

9 September 2012

Arrival - Registration	16.00- 21.00
<i>Dinner</i>	19.00- 20.00

10 September 2012

<i>Breakfast</i>	9.00- 10.00
OPENING CEREMONY	10.00- 10.10

Morning Session

I. THEORY, MODELLING AND DIAGNOSTICS

1. *E. Benova* (plenary) 10.10-
MODELLING OF MICROWAVE 10.50
DISCHARGES SUSTAINED BY
TRAVELLING ELECTROMAGNETIC
WAVES
 2. *J.P. Boeuf, B. Chaudhury* (plenary) 10.50-
PLASMA DYNAMICS DURING 11.30
MICROWAVE BREAKDOWN
 3. *A. Lacoste, G. Regnard, J. Pelletier* (plenary) 11.30-
COUPLING MODES OF MICROWAVE 12.10
PLASMA SOURCES WITH LOCALISED
POWER ABSORPTION
- | | |
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| <i>Cafe-break</i> | 12.10-
12.30 |
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| 4. | <u>T. Grotjohn, C. Meierbachtol, B. Shanker</u>
MODELING OF MODERATE PRESSURE
MICROWAVE PLASMA-ASSISTED
CHEMICAL VAPOR DEPOSITION
REACTORS | 12.30-
12.55 |
| 5. | <i>K. Khodataev</i>
3-D MODELING OF SUBCRITICAL MW
DISCHARGES OF HIGH PRESSURE | 12.55-
13.20 |
| 6. | <u>H. Miyamoto, N. Ohnishi</u>
NUMERICAL ANALYSIS OF IONIZATION
FRONT FORMATION IN MICROWAVE
PROPULSION USING FDTD METHOD | 13.20-
13.45 |
| | <i>Lunch</i> | 14.00-
15.00 |

Evening Session

**I. THEORY, MODELLING AND
DIAGNOSTICS**

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| 7. | <i>M. Moisan (plenary)</i>
THE POWER ABSORBED PER ELECTRON
IN SURFACE-WAVE DISCHARGES: ITS
CONTRIBUTION TO THE MODELLING OF
ELECTRIC-FIELD DISCHARGES IN
GENERAL AND A MEANS OF APPRAISING
THEIR EFFICIENCY AS FUNCTIONS OF
OPERATING CONDITIONS | 15.00-
15.40 |
| 8. | <u>J.M. Palomares, S. Hübner, E.A.D. Carbone,
E. Iordanova, J.J.A.M. van der Mullen (plenary)</u>
LASER SCATTERING DIAGNOSTICS ON
SURFACE WAVE DISCHARGES:
ACHIEVING SPATIAL AND TEMPORAL
CHARACTERIZATION | 15.40-
16.20 |

9. S. Dvinin, *W-T. Park, A. Kalinin, A. Kashaba, N. Nikishin* 16.20-16.45
RESONANCES IN HIGH FREQUENCY CCP DISCHARGES
- Cafe-break* 16.45-17.00
10. S. Rahimi, *M. Jimenez-Diaz, J. van Dijk, E. Kemaneci and J. J. A. M. van der Mullen* 17.00-17.25
A 2D MODEL FOR COAXIAL SURFACE WAVE DISCHARGES
11. M. Jimenez-Diaz, *J. van Dijk, S. Rahimi, E. Kemaneci, and J. J. A. M. van der Mullen* 17.25-17.50
TWO DIMENSIONAL MODELLING OF MICROWAVE INDUCED PLASMAS USING PLASIMO
12. V. A. Shakhmatov, *T. B. Mavlyudov, Yu. A. Lebedev* 17.50-18.15
COMPARISON OF GAS COMPOSITION EFFECT ON PARAMETERS OF DC GLOW AND MICROWAVE DISCHARGES IN MIXTURES OF HELIUM WITH NITROGEN
13. E.A.D. Carbone, *W.A.A.D. Graef, J. M. Palomares, S. Hübner, J.J.A.M. van der Mullen* 18.15-18.40
PROBING EXCITATION KINETICS IN MICROWAVE PLASMAS BY LASER INDUCED FLUORESCENCE AND COLLISIONAL RADIATIVE MODELS
- Welcome party* 19.00-22.00

11 September 2012

Breakfast 9.00-
10.00

Morning Session

II. MICROWAVE PLASMA GENERATION

1. *J. Asmussen* (plenary). 10.00-
MICROWAVE PLASMA REACTOR FOR 10.40
CVD DIAMOND SYNTHESIS
2. *C. M. Ferreira, E. Tatarova, J. Henriques and F. M. Dias* (plenary) 10.40-
11.20
SURFACE WAVE DRIVEN AIR-WATER
PLASMAS
3. *V.M.Shibkov* (plenary) 11.20-
FREELY LOCALIZED AND SURFACE 12.00
MICROWAVE DISCHARGES
- Cafe-break* 12.00-
12.20
4. *E. Jerby, Y. Meir* 12.20-
EXPERIMENTAL CHARACTERIZATION OF 12.45
SILICA PLASMOIDS EXCITED BY
LOCALIZED MICROWAVES
5. *I.A.Kossyi, S.I.Gritsini, A.M.Davydov* 12.45-
NONLINEAR PHENOMENA INHERENT IN 13.10
MICROWAVE DISCHARGE PHYSICS AS A
BASIS OF A NEW PLASMATRONS DEVICE
6. *S. Hübner, J.M. Palomares, E.A.D. Carbone, J.J.A.M. van der Mullen* 13.10-
15.35
INVESTIGATING A COAXIAL
MICROWAVE PLASMA
- Lunch* 14.00-

Evening Session

15.00

II. MICROWAVE PLASMA GENERATION

7. *A. Ravaev, I. Esakov, P. Lavrov* 15.00-
ELECTROMAGNETIC VIBRATOR NEAR 15.25
METAL SURFACE AS INITIATOR OF
SUBCRITICAL MICROWAVE DISCHARGES
8. *A. Medvedev, G. Grachev* 15.25-
GENERATION OF A LASER-PLASMA ION 15.50
FLOW IN A MICROWAVE CAVITY
9. *E.M. Barkhudarov, I.A. Kossyi, M.A. Misakyan* 15.50-
NEW MICROWAVE PLASMA SOURCE IN 16.15
WATER
- Cafe-break* 16.15-
16.35
- Poster session 16.35-
19.00
- Dinner* 19.00-
20.00

POSTERS

1. *V.V. Andreev, D.V. Chuprov, M.A. Korneeva, A. A. Novitsky*
EOS, PROBE AND X-RAY MEASUREMENTS MIRROR
CONFINED LOW PRESSURE ECR-PLASMA
2. *V.V. Andreev, D.V. Chuprov, A. A. Novitsky, A.M. Umnov*
MICROWAVE AUTORESONANCE PULSE-PERIODIC
PLASMA ACCELERATOR
3. *V.I. Arkhipenko, Th. Callegari, J. Lo,*
L.V. Simonchik, J. Sokoloff, M.S. Usachonak
CONTROL OF ELECTROMAGNETIC BAND GAP
DEVICES BY DISCHARGE PLASMAS

4. ***D. Aydogan, P. V. Kozlov, V.M. Lelevkin***
**MICROWAVE HEATING OF CERAMIC PLATE TAKING
INTO CONSIDERATION THE CERAMIC RADIATION**
5. ***P. Baële, S. Béchu, A. Bès, J. Pelletier, A. Lacoste***
**DESIGN AND PERFORMANCES OF TOP-TO-TAIL
MICROWAVE PLASMA SOURCES**
6. ***A.A.Balmashnov, A.V.Kalashnikov, V.V.Kalashnikov,
S.P.Stepina, A.M.Umnov***
**CERA-RX (C) – DEPENDENCE OF X-RAY INTENSITY
ON ECR DISCHARGE CONDITIONS**
7. ***T. Bogdanov, E. Benova***
**MODELLING OF MICROWAVE DISCHARGES IN
COAXIAL GEOMETRY**
8. ***N.N. Buravtsev, V.S. Konstantinoy, Yu.A. Lebedev,
T.B. Mavlyudov***
MICROWAVE DISCHARGE IN LIQUID HEPTANE
9. ***A.X. Castillo, V.P. Milantiev***
**AVERAGED RELATIVISTIC MOTION OF THE
CHARGED PARTICLE IN THE WAVE GUIDE**
10. ***V.V. Chernov, D.B. Radishev, A.L. Vikharev,
A.M Gorbachev, A.V. Kozlov***
**INVESTIGATION OF GAS DISCHARGE PLASMA
MAINTAINED IN CROSSED MILLIMETER WAVE BEAMS**
11. ***I.L. Epstein, M.S. Gitlin, Yu.A. Lebedev***
**MODEL OF THE POSITIVE COLUMN OF A Cs-Xe DC
DISCHARGE AFFECTED BY A MICROWAVE PULSE**
12. ***K. Gadonna, O. Leroy, P. Leprince, C. Boisse-Laporte,
L.L. Alves***
**MICROWAVE PLASMA TORCH AT ATMOSPHERIC
PRESSURE: THERMAL TRANSFER**
13. ***A. Ganiev, S. Shapoval.***
**AIR PLASMA AT ATMOSPHERIC PRESSURE FOR
APPLICATION IN PLASMA-PHOTONIC CRYSTAL**

14. **S. Gritsinin, A. Davydov, I. Kossyi, M. Misakyan**
**MICROWAVE TORCH AS A MEANS OF SYNTHESIS
GAS PRODUCTION**
15. **J. Jovović, I.L. Epstein, N. Konjević, Yu.A. Lebedev,
N. M. Šišović, A.V. Tatarinov**
**SPECTROSCOPY AND 2D MODELING OF NON-
UNIFORM MICROWAVE DISCHARGE IN NITROGEN
AND NITROGEN-HYDROGEN MIXTUREs**
16. **E. Kemaneci, M. Jimenez-Diaz, J. van Dijk, S. Rahimi, J. van
der Mullen, G. Kroesen**
**TWO DIMENSIONAL MODEL OF MICROWAVE
INDUCED Ar PLASMA FOR FIBRE PRODUCTION**
17. **Yu. Kholopova, E. Polushkin, N. Antonova, V. Zemlyakov,
S. Shapoval**
**NANOSTRUCTURE MICROWAVE PLASMA
FORMATION OF OPTOELECTRONIC DEVICES**
18. **G.V. Krashevskaya, M M. Tsventoukh, S.A. Lepikhov, V.V.
Danshin**
**INVESTIGATION OF FAST-ELECTRON COMPONENT
IN ECR-PLASMA CONFINED IN STRONGLY NON-
UNIFORM MAGNETIC FIELD**
19. **Yu.A. Lebedev, T.B. Mavlyudov, A.V. A Chvyreva, A.V.
Tatarinov, I.L Epstein**
**INFLUENCE OF SMALL ADDITIONS OF NEON ON
THE CHARACTERISTICS OF STRONGLY NON-
UNIFORM MICROWAVE DISCHARGE IN NITROGEN**
20. **Yu.A. Lebedev, E.V. Yusupova, I.L. Epstein**
**STRUCTURE OF SURFACE LAYER OF HYDROGEN
MICROWAVE PLASMA IN DC FIELD**
21. **Yu.A. Lebedev, A.V. Tatarinov, I.L. Epstein**
**2D AND 3D MODELING OF THE EMD: SEARCH FOR
OPTIMAL SIZES OF ELEMENTS OF THE WORKING
CHAMBER; CHARACTERISTICS OF H₂ AND N₂
MICROWAVE DISCHARGES**

22. **P. Marinova, M. Atanasova, E. Benova**
**MODELLING OF MICROWAVE DISCHARGE SUSTAINED
BY TRAVELLING ELECTROMAGNETIC WAVE AT
ATMOSPHERIC PRESSURE**
23. **Y. Meir, E. Jerby**
**MICROWAVE INUCED BREAKDOWN SPECTROSCOPY
FOR MATERIAL IDENTIFICATION**
24. **A. Mitina, A. Kovalchuk, A. Ganiev, E. Polushkin, S. Shapoval**
**GALLIUM NITRIDE AND DIAMOND LIKE CARBON FILMS
DEPOSITED BY ECR PLASMA**
25. **E. Polushkin, A. Kovalchuk, S. Shapoval**
**THE APPLICATION OF ECR PLASMA IN THE
PROCESSING PROCEDURES OF MEMS AND NEMS
SYSTEMS**
26. **A. V. Prokopenko, K. D. Smirnov**
**MICROWAVE PLASMA TORCH AT ATMOSPHERIC
PRESSURE FOR APPLICATION TASKS**
27. **V. A. Shakhatov, T. B. Mavlyudov, Yu. A. Lebedev**
**SPECTROSCOPIC INVESTIGATION OF
ELECTRONICALLY – VIBRATIONALLY – ROTATIONAL
DISTRIBUTION FUNCTIONS IN THE DC GLOW AND
MICROWAVE DISCHARGES IN MIXTURES OF
HYDROGEN WITH NITROGEN**
28. **V. A. Shakhatov, T. B. Mavlyudov, O. A. Gordeev, K.
A. Vereschagin**
**COMPARISON OF ELECTRONICALLY –
VIBRATIONALLY – ROTATIONAL DISTRIBUTION
FUNCTIONS OF NITROGEN MOLECULE DETECTED BY
EMISSION AND CARS SPECTROSCOPY IN DC GLOW AND
MICROWAVE DISCHARGES AT MEDIUM PRESSURES**
29. **K. Sergeichev, D. Karfidov, N. Lukina, A. Fesenko**
**X-BAND LATTICE PLASMA REFLECTOR IN
AFTERGLOW OF PULSED DC-DISCHARGE**

12 September 2012

Breakfast 9.00-
10.00

Morning Session

III. MICROWAVE PLASMA APPLICATION

1. **F. M. Dias, N. Bundaleska, R. Saavedra,** 10.00-
E. Tatarova, C. M. Ferreira, and J. Amorim 10.40
(plenary)
**PRETREATMENT OF BIOMASS BY
ATMOSPHERIC PRESSURE MICROWAVE
PLASMAS**
2. **A.L. Vikharev, A.M. Gorbachev** (plenary) 10.40-
MICROWAVE DISCHARGE IN INTERSECTING 11.20
**MILLIMETER WAVE BEAMS AND ITS
APPLICATIONS**
3. **S. Shapoval, A. Ganiev, A. Kovalchuk** (plenary) 11.20-
APPLICATION OF THE ECR PLASMA IN MICRO- 12.00
AND NANOELECTRONICS
- Cafe-break*** 12.00-
12.20
4. **V.I. Arkhipenko, Th. Callegari, J. Lo,** 12.20-
L.V. Simonchik, J. Sokoloff, M.S. Usachonak 12.45
**CONTROL OF ELECTROMAGNETIC BAND GAP
DEVICES BY DISCHARGE PLASMAS**
5. **A.V. Gusev, R.A. Kornev** **A.Yu. Sukhanov** 12.45-
CONVERSION OF SILICON TETRACHLORIDE IN 13.10
MICROWAVE PLASMA
6. **P.V.Kopyl, V.M.Shibkov, L.V.Shibkova, O.S.Surkont** 13.10-
STABILIZATION OF COMBUSTION OF HIGH- 13.35
**SPEED HYDROCARBON-AIR STREAMS UNDER
CONDITIONS OF THE COMBINED MICROWAVE
DISCHARGE**

Lunch 14.00-
15.00

Evening Session

III. MICROWAVE PLASMA APPLICATION

8. *Y. Meir, E. Jerby* 15.00-
THERMITE IGNITION BY LOCALIZED 15.25
MICROWAVES
9. *K. Sergeichev, N. Lukina* 15.25-
DIAMOND FILM DEPOSITION BY MICROWAVE 15.50
PLASMA TORCH AT ATMOSPHERIC PRESSURE
10. *P.G. Sennikov, S.V. Golubev, V.A. Koldanov,* 15.50-
R.A. Kornev, L.A. Mochalov, I.A. Kossiy, 16.15
A.M. Davidov, D.A. Pryakhin
HYDROGEN REDUCTION OF SILICON
TETRAFLUORIDE IN PLASMA SUSTAINED BY
DIFFERENT ELECTRIC DISCHARGES
11. *I. Shilov, V. Babenko, A. Panas, L. Kochmarev* 16.15-
SILICA FIBER OPTIC PROBES FOR THE 16.40
LUMINESCENT CANCER DIAGNOSTICS
PRODUCED BY THE MICROWAVE DISCHARGE
AT A LOW PRESSURE
12. *M.V. Tsodikov, A.V. Chistyakov, G.I. Konstantinov,* 16.40-
M.A. Perederii 17.05
PLASMA GENERATED BY MICROWAVE
IRRADIATION INNER CARBON ADSORBENTS
PORES FOR HIGH DISPERSED CATALYST
PREPARATION AND TOXIC COMPOUNDS
DEGRADATION
- Cafe-break* 17.05-
17.25
14. *I. A. Boriev* 17.25-
CERTAIN PECULIARITIES OF ELECTRON 17.50
DYNAMICS AND HEATING UNDER MICROWAVE
RADIATION

15.	<i>L. Grachev, I. Esakov, A. Ravaev, K. Khodataev</i>	17.50-
	POSSIBILITY OF APPLICATION OF MW DISCHARGES ON A DIELECTRIC GRID EXCITED IN THE FIELD OF A QUASIOPTICAL ELECTROMAGNETIC BEAM FOR PLASMA-ASSISTED COMBUSTION	18.15
	<i>Dinner</i>	19.00- 20.00
	Meeting of the International Scientific Committee of the Workshop	20.30

13 September 2012

<i>Breakfast</i>	9.00- 10.00
Departure from Zvenigorod	10.30
Excursions in Moscow	12.00- 16.00
Banquet in the Central Home of Scientists of the Russian Academy of Sciences (Moscow)	16.00- 20.00
Departure from Moscow	20.00
Arrival to Zvenigorod	22.00

14 September 2012

Breakfast

9.00-
10.00

Morning Session

**I. THEORY, MODELLING AND
DIAGNOSTICS**

14. *R.V. Bekarevich, S. Miura, A. Ogino,
A.U. Rahachou, M. Nagatsu* 10.00-
10.40
- LOW-TEMPERATURE SYNTHESIS OF
CARBON NANOTUBES AND GRAPHENE
SHEETS USING MICROWAVE PLASMA**
15. *A. Kovalchuk, S. Shapoval* 10.40-
11.20
- ELECTRODYNAMIC CHARACTERISTICS
OF THE PLASMA LAYERS AT
ATMOSPHERIC PRESSURE IN THE
MICROWAVE SPECTRUM**
16. *V.A. Ivanov, A.S. Sakharov, M.E. Konyzhev,
J.A. Tarbeeva* 11.05-
11.30
- MICROWAVE MULTIPACTOR DISCHARGE
ON A DIELECTRIC: THEORY,
EXPERIMENT, AND 2D COMPUTER
SIMULATIONS**
17. *Yu.A. Lebedev, E.V. Yusupova, I.L. Epstein* 11.30-
11.55
- INFLUENCE OF DC VOLTAGE ON
CHARACTERISTICS OF MICROWAVE
PLASMA CATHODE IN NITROGEN**

18.	<i>O. Carabaño, <u>A. Gamero</u>, A. Sola</i>	11.55-
	SURFACE WAVE MICROWAVE PLASMAS	12.20
	PRODUCED IN A COAXIAL STRUCTURE	
	AT LOW PRESSURE	
	<u>CLOSING CEREMONY</u>	12.20-
		12.40
	<i>Lunch</i>	
		14.00
	Departure	16.00

