



# SYMPOSIUM ON PHYSICS OF IONIZED GASES: 60 YEARS OLD AND STILL GOING STRONG

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# A personal note

- Growing up with stories about SPIG
- A girl in the neighbourhood whose father was one of the most frequent participants of the SPIG
- Marko Popović
- I could not imagine choosing any field in science that would be incompatible with SPIG

20th Summer School and International Symposium on the Physics of Ionized Gases

# 20th SPIG

<http://www.phy.bg.ac.yu/~spig2000>

Yugoslavia, Zlatibor, September 4 - 8, 2000

## CONFERENCE TOPICS:

### Section 1. ATOMIC COLLISION PROCESSES

- 1.1. Electron and Photon Interactions with Atomic Particles
- 1.2. Heavy Particle Collisions
- 1.3. Swarms and Transport Phenomena

### Section 2. PARTICLE AND LASER BEAM INTERACTION WITH SOLIDS

- 2.1. Atomic Collisions in Solids
- 2.2. Sputtering and Deposition
- 2.3. Laser and Plasma Interaction with Surfaces

### Section 3. LOW TEMPERATURE PLASMAS

- 3.1. Plasma Spectroscopy and other Diagnostics Methods
- 3.2. Gas Discharges
- 3.3. Plasma Applications and Devices

### Section 4. GENERAL PLASMAS

- 4.1. Fusion Plasmas
- 4.2. Astrophysical Plasmas
- 4.3. Collective Phenomena



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P. O. Box 68, 11080 Zemun, Yugoslavia  
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# The playing field: world 1

- Passage of electricity through gases, first discharges and plasma effects 19th century
  - Faraday, Hittorf, Crookes, Tesla, Pupin,
- Passage of electricity through gases- associated with major applications:
  - Elementary particle (electron) detection JJ Thompson, J Townsend, Rutherford, Millikan, Wilson, Ramsauer,
  - Atmospheric charges and cosmic rays (Massey, Ginzburg, Gurevich, Holstein, Biberman, ...)
  - Elementary processes of gas discharges (Penning Dreyvesteyn, Von Engel, ...)
  - Gas lasers (Phelps, ...)
  - Physics of swarms (Phelps, Crompton, Huxley, Llewellyn- Jones, Emeleus, ...)
- Binary collisions of electrons and ions ...
- Strongly coupled plasmas: waves, instabilities, confinement,
- Astrophysical plasmas
- Fusion research: plasma surface interaction
- Low temperature plasmas opened new applications such as plasma etching, ..., plasma medicine, ...
-

# The playing field: former Yugoslavia 1

- Used in chemistry (S Lozanić)
- Nuclear weapon dream- three federally funded institutes:
  - Institut Boris Kidrič Vinča-Belgrade,
  - Institut Rudjer Bošković Zagreb
  - Institut Jožef Štefan Ljubljana
- After the nuclear weapons dream ended (very quickly) and also the nuclear energy option support ...
- Federally funded, big experiment institutes imploded, many of the scientists diffused to the Universities.
- Universities in former Yugoslavia were not in accordance with the standard organization of Universities. More like loose confederations.

# The playing field: former Yugoslavia 2

- In order to support a wide range of topics in physics and related applied sciences cheaper, smallscale experiments were needed as well as related theories.
- Institutes of the Universities were formed (Belgrade, Zagreb) to integrate work and facilities for numerous professors of physics at various faculties.
- Many young physicists (already fully employed at the Universities or Institutes) have gone to finish their PhD and bring back (being fully employed) new topical research especially experimental.
- Physics of Ionized gases: Konjević, Labat, Vujnović, Šternberg,
- Binary collisions: Kurepa, Janev, Božin, ...
- Plasma surface interactions: Navinšek, T. Nenadović
- Plasmas

# The playing field: world 2

- Gaseous Electronics Conference (part of DAMOP but associated with plasma physics within APS) annual 72 years old in 2019
- APS DPP Division on plasma Physics 62 years old
- ICPIG biannual XXXIV in 2019- 70 years old
- ICPEAC sprung from the ICPIG conference biannual XXXI in 2019:
  - Large number of satellite conferences, in 2019 2 of the satellites were colocated in Belgrade under moniker POSMOL, while all other activities were distributed in France
- All other conferences are younger
- ESCAMPIG biannual XXV in 2020-2022
- International Conference on Plasma Physics XIV in 2019
- EPS Conference on Plasma Physics annual XLVII in 2020
- ICRP X in 2019 but it lasted longer than 20 years.
- XXII International Conference on Gas Discharges Novi Sad 2018

# The playing field: world 3

- The competition and the influence
- Many specialized conferences covering single SPIG topics or subtopics (e.g. POSMOL...)
- Application oriented connected conferences such as EU-Japan symposium on plasma processing (from 2003 onwards...)
- Many similar conferences in numerous countries that operate on similar principles: Strong foreign presence and guidance, chance for young scientists to present their work, ...
  - VEIT Bulgaria
  - Pacific rim
  - GEM in Australia ....
- Bad Honeff – Eindhoven, Summer schools.....





**Atomic Collision Processes** - Electron and Photon Interactions with Atomic Particles, Heavy Particle Collisions, Swarms and Transport Phenomena;

**Particle and Laser Beam Interactions with Solids** - Atomic Collisions in Solids, Sputtering and Deposition, Laser and Plasma Interaction with Surfaces;

**Low Temperature Plasmas** - Plasma Spectroscopy and other Diagnostic Methods, Gas Discharges, Plasma Applications and Devices;

**General Plasmas** - Fusion Plasmas, Astrophysical Plasmas and Collective Phenomena.

NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
<b>SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
1	1962	Belgrade	B.Perović (Belgrade)	
2	1964	Zagreb	Z.Šternberg (Zagreb)	
<b>SUMMER SCHOOL ON PHYSICS OF IONIZED GASES</b>				
-	1964	Herceg Novi	B.Perović(Belgrade)	
<b>SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
3	1966	Niš	Dj Bošan(Niš)	Dj Bošan (Niš)
<b>SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
4	1968	Herceg Novi	B.Perović (Belgrade)	B.Perović (Belgrade)
5	1970	Herceg Novi	B.Navinšek (Ljubljana)	B.Čobić (Belgrade)
6	1972	Split	M.Kurepa (Belgrade)	--
7	1974	Rovinj	V.Vujnović (Zagreb)	--
8	1976	Dubrovnik	B.Navinšek (Ljubljana)	--
9	1978	Dubrovnik	R.Janev (Belgrade)	B.Perović (Belgrade)
10	1980	Dubrovnik	B.Čobić (B)	H.Drawin (France)
11	1982	Dubrovnik	G.Pichler (Zagreb)	B.Aničin (Belgrade)
12	1984	Šibenik	M.M.Popović (Belgrade)	M.M.Popović (Belgrade)
13	1986	Šibenik	J.Purić (Belgrade)	M.Kurepa (Belgrade)
14	1988	Sarajevo-Igman	L.Tanović (Sarajevo)	N.Konjević (Belgrade)
15	1990	Dubrovnik	D.Veža (Zagreb)	I.Terzić (Belgrade)
16	1993	Belgrade	M.Milosavljević (Belgrade)	Z.Petrović (Belgrade)
17	1994	Belgrade	B.Marinković (Belgrade)	Z.Petrović (Belgrade)
18	1996	Kotor	B.Vujičić , S.Djurović (Novi Sad)	J.Purić (Belgrade)
19	1998	Zlatibor	N.Konjević (Belgrade)	S.Djurović (Novi Sad)
20	2000	Zlatibor	Z.Petrović, N.Bibić (Belgrade)	M.Kuraica (Belgrade)
21	2002	Soko Banja	M.Radović (Niš)	N.Bibić (Belgrade)
22	2004	Bajina Bašta	Lj.Hadžievski (Belgrade)	T.Grozdanov (Belgrade)
23	2006	Kopaonik	N.Simonović, P.Marinković (Belgrade)	T.Grozdanov (Belgrade)
24	2008	Novi Sad	L.Popović, M.Dimitrijević (Belgrade)	G.Malović (Belgrade)
25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
26	2012	Zrenjanin	Z. Mijatović (Novi Sad)	M. Kuraica (Belgrade)
27	2014	Belgrade	D. Marić, A.R. Milosavljević (Belgrade)	Z. Mijatović (Novi Sad)
28	2016	Belgrade	G. Poparić, B. Obradović (Belgrade)	D. Marić, A.R. Milosavljević (Belgrade)
29	2018	Belgrade	D. Borka, M. Rajković (Belgrade)	G. Poparić, B. Obradović (Belgrade)
30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)

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The early SPIG meetings

**Branislava Perović - Belgrade**

Zdenko Šternberg – Zagreb

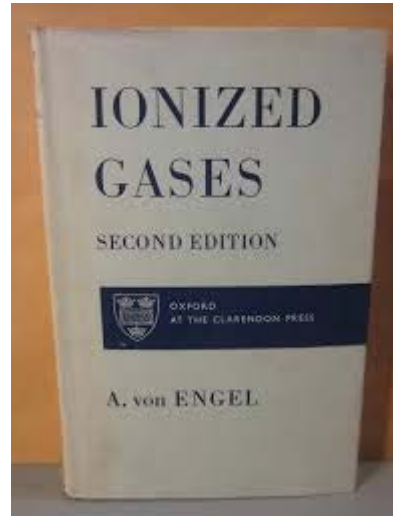
Đorđe Bošan -Niš





# A chance meeting between Brana Perović and A vonEngel

Resulted in the summer school



Lectures in English (and Russian?)  
Several lectures each visiting speaker

Federal nuclear comission- Herceg Novi facility !!

The factor of the Adriatic sea

LECTURES GIVEN AT SUMMER SCHOOL ON THE  
**PHYSICS OF IONIZED GASES**  
 JUNE 1964  
 HERCEG-NOVI, YUGOSLAVIA

Edited by  
**BRANISLAVA PEROVIĆ**  
 BORIS KIDRIČ INSTITUTE OF NUCLEAR SCIENCES, BEOGRAD

Published by  
 FEDERAL NUCLEAR ENERGY COMMISSION OF YUGOSLAVIA  
 BEOGRAD, 1968.

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 J. Craggs  
 A. Von Engel  
 R Herman  
 L Herman  
 A Cullen

electron and heavy particle collisions  
 theory of heavy particle collisions  
 Collisions of negative ions, negative ions in Townsend discharge  
 swarms, gas discharges, ambipolar diffusion  
 plasma spectroscopy  
 shape of lines  
 microwave spectroscopy

How connection of a small village on the Adriatic coast near Dubrovnik to the electric grid affected the SPIG conference

# **The PEAK OF the conference 1968-1988**



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### Set of principles defined:

1. In English!! (well in 1968 there was a transition...)
2. Young completed Ph. Ds Some of our senior scientists - Progress report
3. Renowned international Scientists – Invited lectures
4. Contributed papers
5. International conference!! According to the rules of the day- but it was generally accepted as such
6. Pedagogical part (sometimes 33% sometimes 0% -but in all cases scientists in former Yugoslavia could learn ).
  1. Scientists could learn what the topical issues are
  2. How to present a poster and defend it
  3. How to make an oral presentation
7. Technical part (up to the date topical research)

FOURTH YUGOSLAV SYMPOSIUM  
ON

# PHYSICS OF IONIZED GASES 1968

CONTRIBUTED PAPERS

HERCEG NOVI  
AUGUST 15-24, 1968

19. C. Benardović, DIFFUSION OF INERT GAS IN METALS  
20. I. Terzić, B. Perović, SPECTRUM ANALYSIS OF LIGHT EMITTED FROM METALLIC  
OF AL, Ag AND W<sub>2</sub> TARGETS UNDER BOMBARDMENT OF MEDIUM ENERGY IONS  
21. I. Terzić, THE DEPENDENCE OF THE INTENSITY OF LIGHT EMITTED FROM METALLIC  
TARGETS OF THE ANGLE OF INCIDENCE AND INTENSITY OF THE ION BEAM AND SURFACE CONDITION  
22. B. Janjet, I. Terzić, B. Davidović, TRANSITION RATES OF RESONANCE PROCESSES IN  
THE INTERACTION OF  $1\text{A}^+$  IONS WITH  $1\text{A}$ , W AND Mo SOLID SURFACES

## PROCESSES IN PLASMAS

23. D. Srdoč, ON THE DISCHARGE MECHANISM IN GAS MIXTURES  
24. V. Henč-Bertolič, Z. Šternberg, STUDY OF A PULSED GLOW DISCHARGE  
MAGNETIC FIELD  
25. I. Ševčar, CHARACTERISTICS OF THE CROSSED FIELD GAS DISCHARGE WITH A RADIAL  
MAGNETIC FIELD  
26. P. Cibin, MOTION OF THE SECONDARY ELECTRONS IN THE CYLINDRICAL MAGNETRON  
DIODE  
27. D. Tošić, CHARACTERISTICS OF THE PULSED GAS MAGNETRON DIODE  
DISCHARGE BY THE ROTATING MIRROR METHOD  
28. V. Miljević, SPECTROSCOPIC INVESTIGATION OF PLASMA ROTATION IN MAGNETRON  
UDARNOG TALASA U HELIJUMU  
29. J. Labat, V. Čadež, UTICAJ NETERMALNE JONIZACIJE NA PARAMETRE PLAZME IZA  
ELECTRIC FIELD  
30. B. Milić, DRIFT-CYCLOTRON MODE IN WEAKLY IONIZED PLASMA PLACED IN A d.c.  
IN AFTERGLOW PLASMAS  
31. A.R. Jones, B.V. Stanić, E.R. Wooding, MEASUREMENT OF AMBIPOLAR DIFFUSIVITIES  
MEASUREMENT OF SULPHUR LINES IN VACUUM-UV-REGION  
32. D. Müller, WALL-STABILIZED ARC AS A LIGHT SOURCE FOR OSCILLATOR-STRENGTHS  
EMISIJA PLAZME POD VISOKIM PRITISKOM  
33. M. Cerineo, A. Milojević, D. Mioč, M. Petrović, M. Popović, V. Urošević, SVETLOSNA  
ELEMENATA U PLAZMI  
34. M. Todorović, V. Georgijević, V. Vukanović, EMISIONI SPEKTRI  
ELEKTRIČNOG LUKA U NEHOMOGENOM MAGNETNOM POLJU  
35. Lj. Čirković, J. Labat, J. Purić, ODREĐIVANJE PROFILA SPEKTRALNIH LINIJA POMOĆU  
FABRY-PEROT INTERFEROMETRA SA AKSIKONOM  
36. A. Tonejc-Mejaški, SPECTRAL LINE PROFILES IN A LOW CURRENT ARC DISCHARGE  
STRENGTHS OF COPPER LINES IN THE VISIBLE  
37. V. Vujnović, T. Ivezić, A. Tonejc-Mejaški, RELATIVE AND ABSOLUTE OSCILLATOR  
AND THE SPECTRAL EMISSION FROM A SHEATH  
38. M. Kajzer, Z. Stare, Z. Šternberg, CORRELATION BETWEEN THE ELECTRON TEMPERATURE  
OF SOME C II AND C III MULTIPLETS  
39. A. Platina, A.N. Prasad, EXPERIMENTAL STUDIES OF RELATIVE OSCILLATOR STRENGTHS

1968

Herceg Novi

B. Perović (Belgrade)

B. Perović (Belgrade)

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14	1988	Sarajevo-Igman	L.Tanović (Sarajevo)	N.Konjević (Belgrade)

### Set of principles defined:

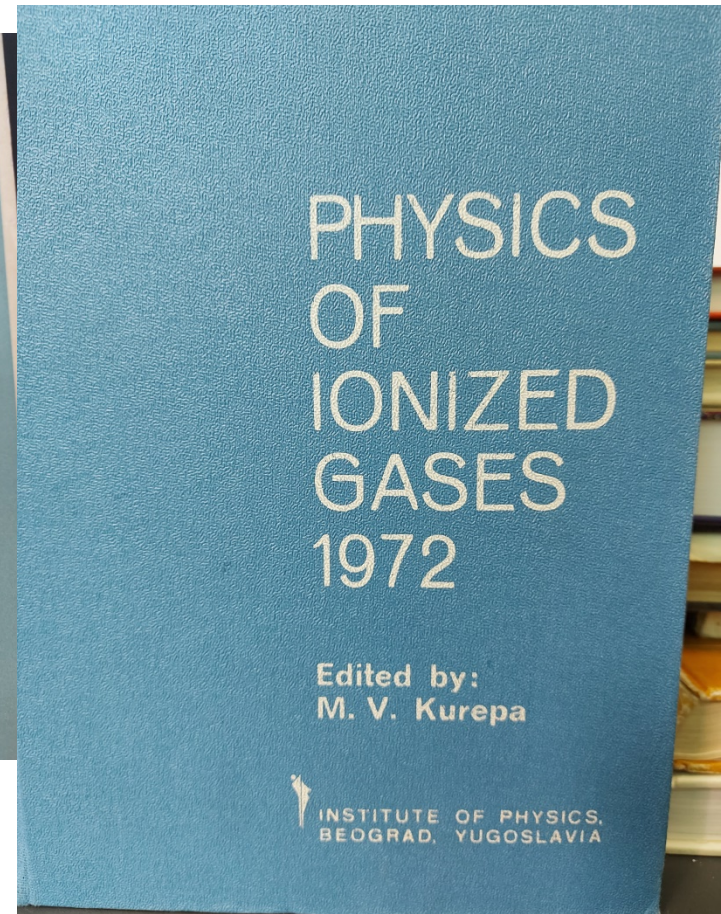
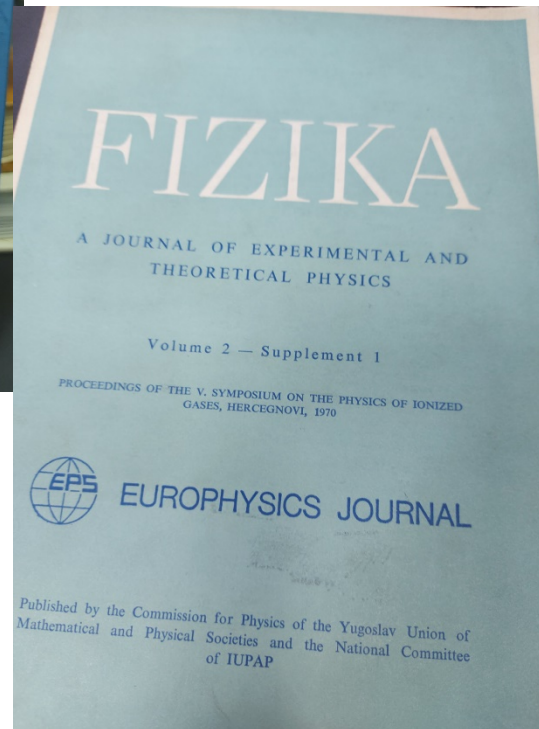
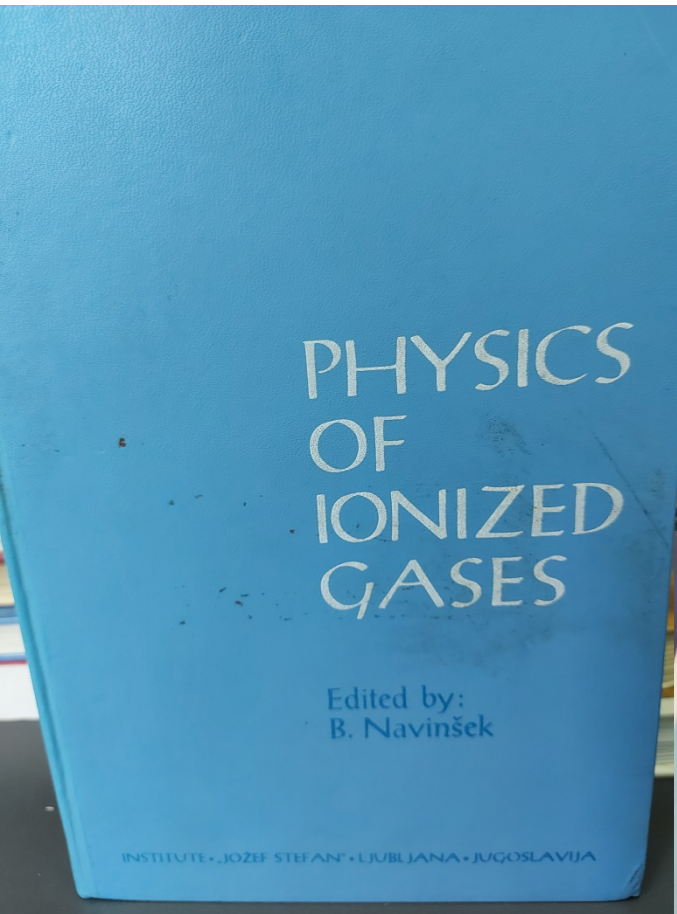
8. Books of contributed papers at the conference – (plus abstracts of the invited lectures)
9. Book of invited lectures!!! Later, well sometimes as late as the next conference!
  - What are books of invited lectures ???
  - Pedagogical goal- lecture, detailed text, literature, .....
10. Once every two years!!
11. Scientific plus organizing Committees – importance of being a chairperson
12. One remains in a committee for 6 years (oh well...)
13. The attraction of the Adriatic, the resorts on the coast with lovely beaches...

**SPIG 1970 B Navinšek**

**Herceg Novi**

**SPIG 1972 M Kurepa**

**Split hotel Lav**



G Zapesochny, J Cowan,  
H. Hagstrum D W Heddle  
M.W. Thompson P. Sigmund  
**H.W Drawin** J. Uhlenbusch  
**R Franklin** J. Whitton  
W. Wiese

# Blue book period

## books of invited lectures



1974 Rovinj V.Vujnović  
(Zagreb)

1976 Dubrovnik B.Navinšek  
(Ljubljana)

PHYSICS  
OF  
IONIZED  
GASES  
1974

Edited by:  
V. Vujnović

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F  
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S  
INSTITUTE OF  
PHYSICS OF THE  
UNIVERSITY  
OF ZAGREB  
YUGOSLAVIA

H Andersen  
L Chadderton  
H Gilbody  
O Shpenik ...

HR Griem  
G McCracken  
G Carter

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PHYSICS  
OF  
IONIZED  
GASES  
1976

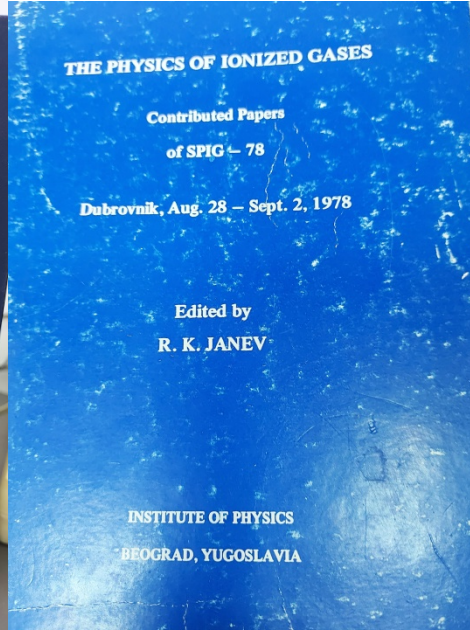
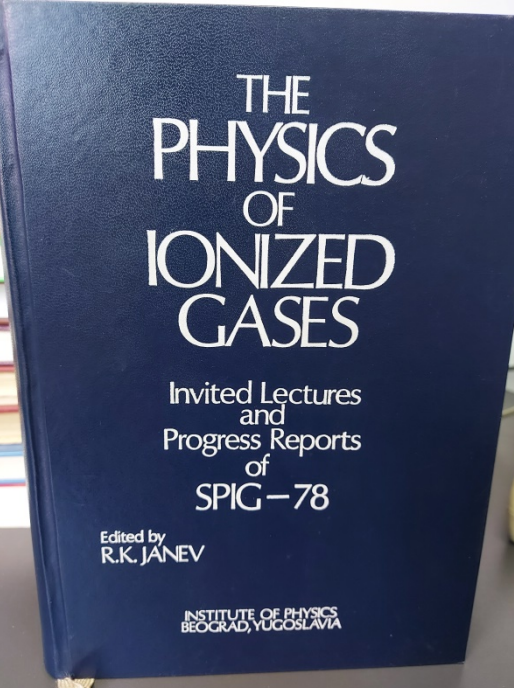
edited by b. navinšek

university of ljubljana  
j. stefan institute, ljubljana, yugoslavia

NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES				
4	1968	Herceg Novi	B.Perović (Belgrade)	B.Perović (Belgrade)
5	1970	Herceg Novi	B.Navinšek (Ljubljana)	B.Čobić (Belgrade)
6	1972	Split	M.Kurepa (Belgrade)	--
7	1974	Rovinj	V.Vujnović (Zagreb)	--
8	1976	Dubrovnik	B.Navinšek (Ljubljana)	--
9	1978	Dubrovnik	R.Janev (Belgrade)	B.Perović (Belgrade)
10	1980	Dubrovnik	B.Čobić (B)	H.Drawin (France)
11	1982	Dubrovnik	G.Pichler (Zagreb)	B.Aničin (Belgrade)
12	1984	Šibenik	M.M.Popović (Belgrade)	M.M.Popović (Belgrade)
13	1986	Šibenik	J.Purić (Belgrade)	M.Kurepa (Belgrade)
14	1988	Sarajevo-Igman	L.Tanović (Sarajevo)	N.Konjević (Belgrade)

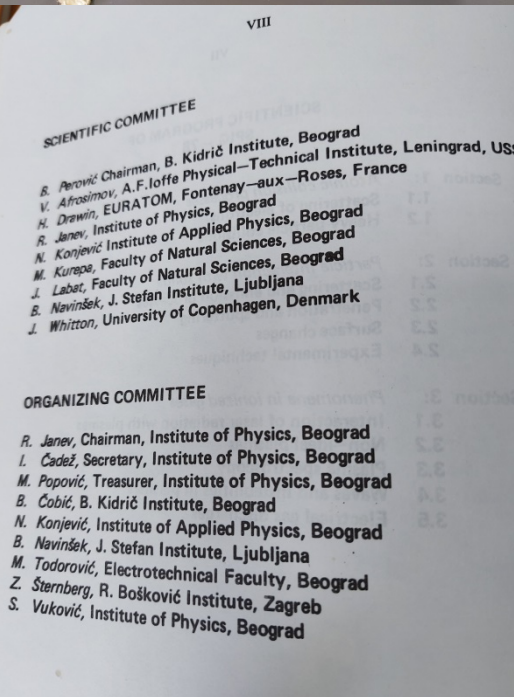
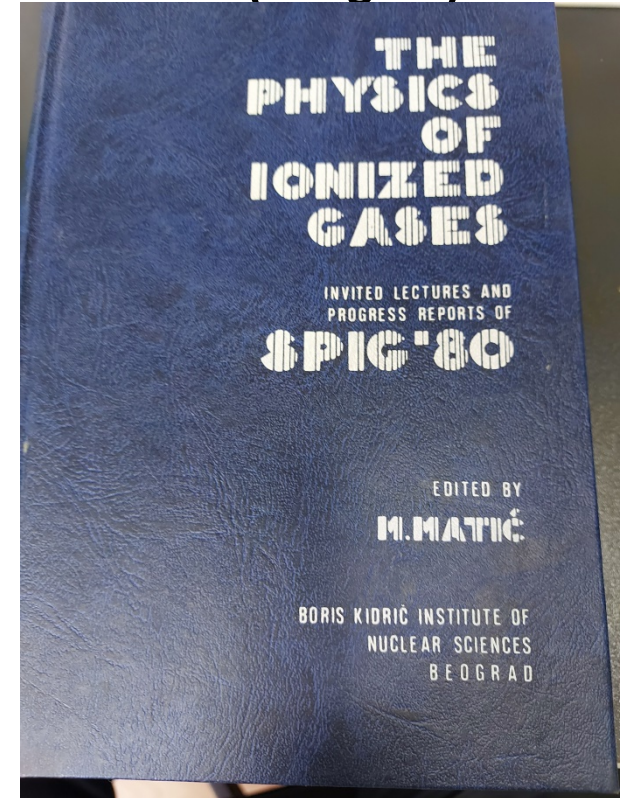
### Set of principles defined:

14. In spite of the attraction of the beach and tourist resorts it was required that participants could interact even outside the conference hall
15. Will Yugoslav scientists give plenary invited lectures??- HW Drawin – Ratko Janev
16. Many young serbian MSc students found supervisors and scholarships for PhD thanks to SPIG
17. Plenary/invited talks in single session, progress reports and some topical lectures in parallel sessions
18. Poster session is always the liveliest part of the programme not counting music after the conference dinner
19. Conference dinners- dancing



1978 Dubrovnik R. Janev (Beograd)  
(Z. Lj Petrović)

1980 Dubrovnik B.Čobić (Beograd)



T Maerk

R Hall

C Szmytkowski

H.S Taylor

M Tronc

Sir David Bates

P Sigmund

W. Kraeft

D Burgess

F. Read

G. Dunn

R Behrisch

D terHaar

NJ Peacock

Fourth section: Energy related  
read fusion  
Later plasmas, astrophysical  
plasmas...



# THE PHYSICS OF IONIZED GASES

Invited Lectures, Review Reports  
and  
Progress Reports  
of  
SPIG-82

Edited by  
G.PICHLER

INSTITUTE OF PHYSICS  
OF THE UNIVERSITY  
ZAGREB, YUGOSLAVIA

R Durer  
M McDowell  
R Azria  
A de Vries  
S Veprek  
K Niemax  
Z Šternberg

M Inokuti  
F Linder  
**RW Crompton**  
B Bransden  
E Solov'ev  
Y Atrazhev  
H Pesceli  
**F Chen**  
E R Wooding

1982 Dubrovnik G Pichler (Zagreb)

1984 Šibenik M.M.Popović (Belgrade)

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I H Wilson	Chelsea College, London, UK

## ACKNOWLEDGEMENTS

The XII Yugoslav Summer School and International Symposium on Physics of Ionized Gases was organized by The Institute of Physics, Belgrade, Yugoslavia under the auspices of

- The Union of the Societies of Mathematicians, Physicists and Astronomers of Yugoslavia

and supported by

- The Council of Self-Managed Communities of Interest for Science of Socialist Republic of Yugoslavia

and

- The Committee for Physics of Self-Managed Community of Interest for Science of Socialist Republic of Serbia

# THE PHYSICS OF IONIZED GASES

Edited by  
M M POPOVIĆ  
P KRSTIĆ

SPIG • 84

Institute of Physics Beograd, Yugoslavia

# THE PHYSICS OF IONIZED GASES

Edited by J PURIĆ  
D BELIĆ

SPIG • 86



Department of Physics and Meteorology  
University of Beograd  
Beograd, Yugoslavia

World Scientific

1986 Šibenik J. Purić (Belgrade)

1988 Sarajevo-Igman L.Tanović (Sarajevo)

World Scientific  
Nova Science Publishers

S Datz  
G King  
G Peach  
H Knudsen  
J Lawler  
K Rosza  
A Gallagher  
R Kelly

R Rivarola  
R J Van Brunt  
I Mihailescu  
J. Whitten  
V Fortov  
H Kunze  
W Demtroder  
W.C Stwaley  
JA Rees  
R Balescu

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N. Tanović Department of Physics, University of Sarajevo, Sarajevo

# THE PHYSICS OF IONIZED GASES

Edited by L. Tanović,  
N. Konjević, N. Tanović



Nova Science Publishers

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University of Beograd, Beograd  
B. Vujčić, Institute of Physics, Novi Sad

SARAJEVO, AUGUST 15-19, 1988, YUGOSLAVIA



## CONTRIBUTED PAPERS

of  
abstracts of invited lectures  
and  
progress reports

electrical engineering faculty  
university of sarajevo  
yugoslavia

# Nadir:

NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES				
15	1990	Dubrovnik	D.Veža (Zagreb)	I.Terzić (Belgrade)
16	1993	Belgrade	M.Milosavljević (Belgrade)	Z.Petrović (Belgrade)
17	1994	Belgrade	B.Marinković (Belgrade)	Z.Petrović (Belgrade)

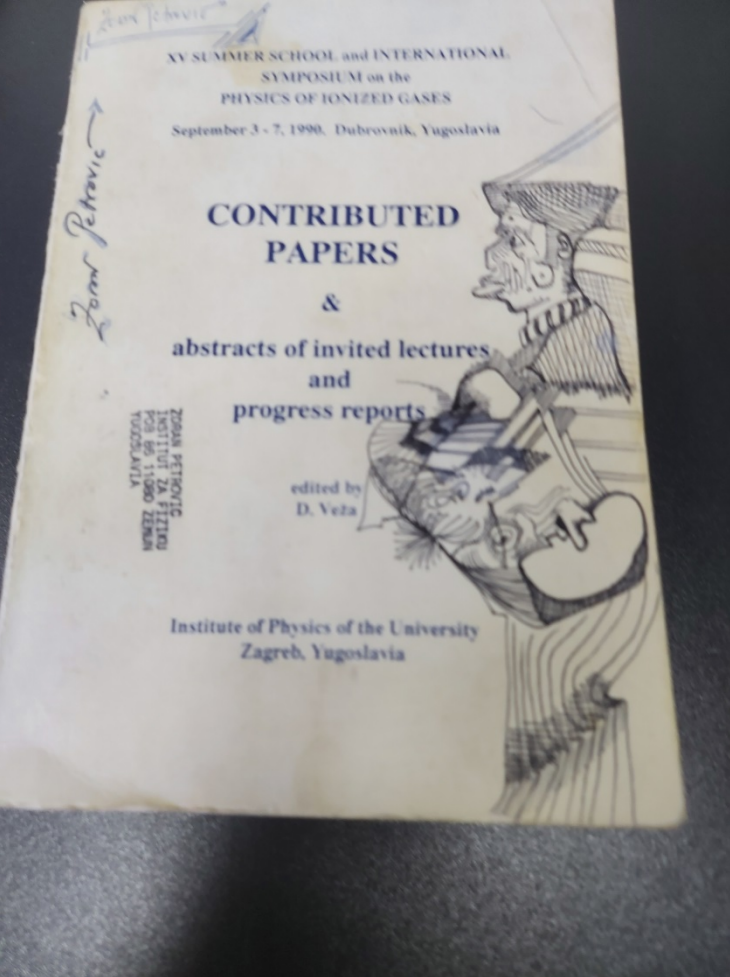
The breakup of Yugoslavia

The war in Yugoslavia

Airlines closed

Gigantic inflation

Sanctions



**1990 Dubrovnik OC D.Veža (Zagreb)  
SC I.Terzić (Belgrade)**

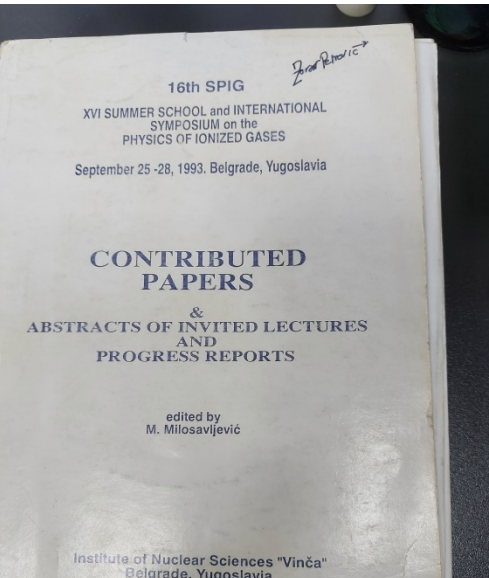
A Muller  
C Joachain  
**T Makabe**  
J Comer  
M Kimura  
W Eckstein  
W Morgan  
P Ranson  
**D Graves**

Early morning flight !!

- To SPIG or not to SPIG that is the ?
- Prof M Kurepa- vs ZLj Petrović
- Nova Science Publishers

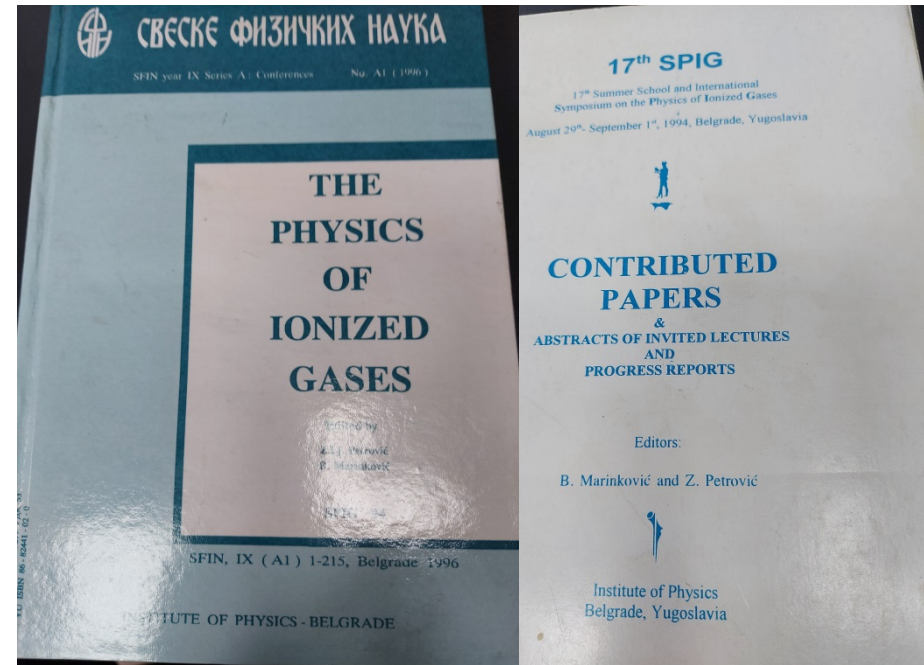
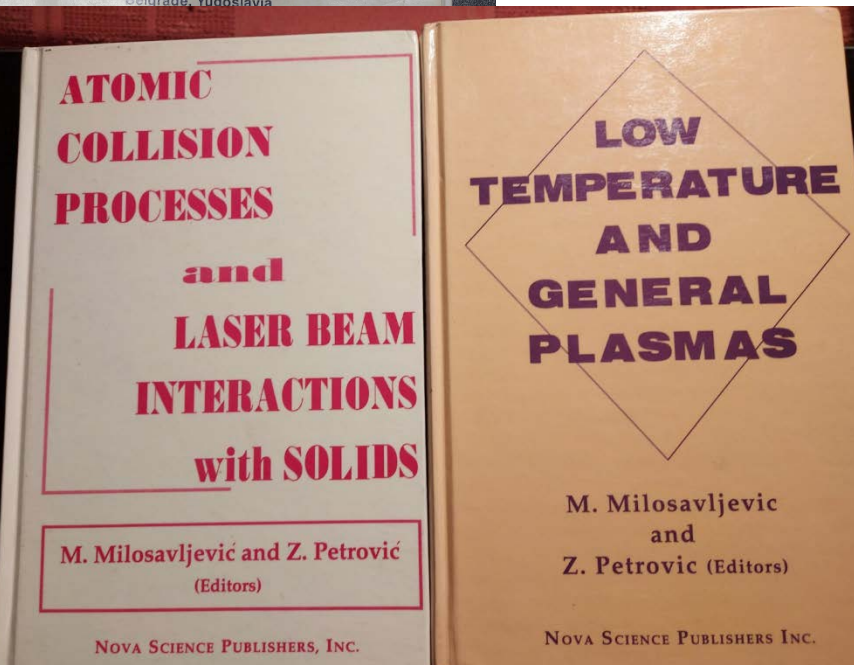
## 1993 Belgrade M.Milosavljević

## 1994 Belgrade B.Marinković



D Vavriv  
R Webb  
M Kono  
AG Nassiopoulou  
P Defrance  
KP Homewood

DŽ Belkić  
M Romanyuk  
D Karpuzov  
V Zoita  
A Klucharev  
E Gogolides  
F Tochikubo  
R Pease



# Recovery:

NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES				
18	1996	Kotor	B.Vujičić , S.Djurović (Novi Sad)	J.Purić (Belgrade)
19	1998	Zlatibor	N.Konjević (Belgrade)	S.Djurović (Novi Sad)
20	2000	Zlatibor	Z.Petrović, N.Bibić (Belgrade)	M.Kuraica (Belgrade)

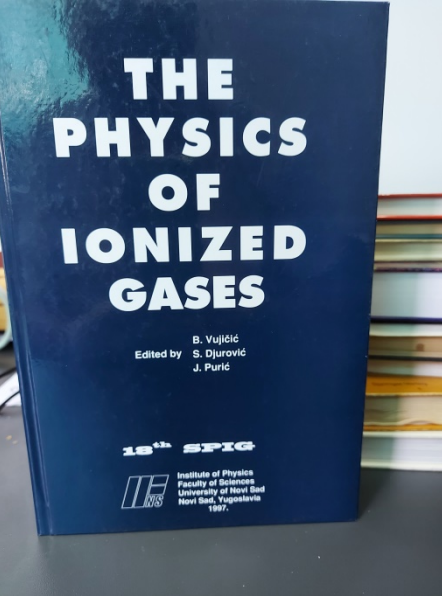
The breakup of Yugoslavia

The war in Yugoslavia

Airlines closed

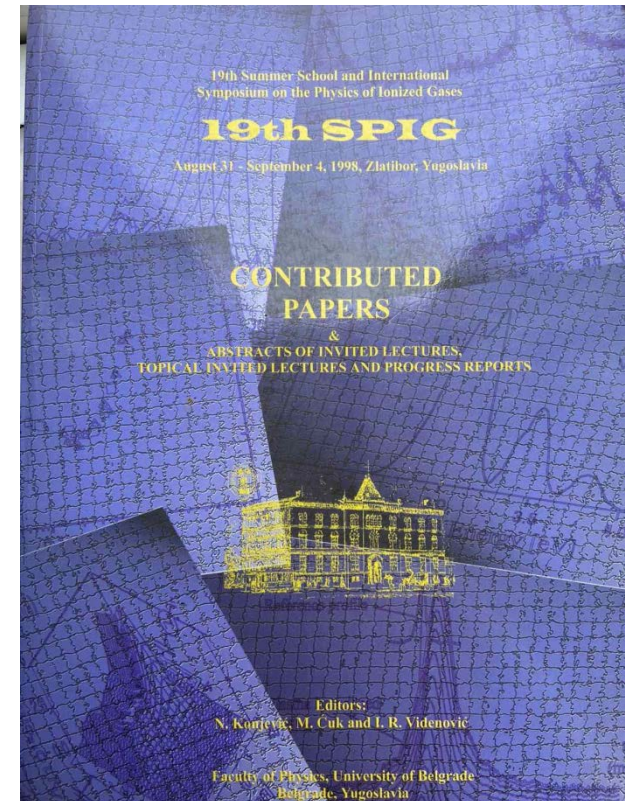
Sanctions

Earthquake in Kotor

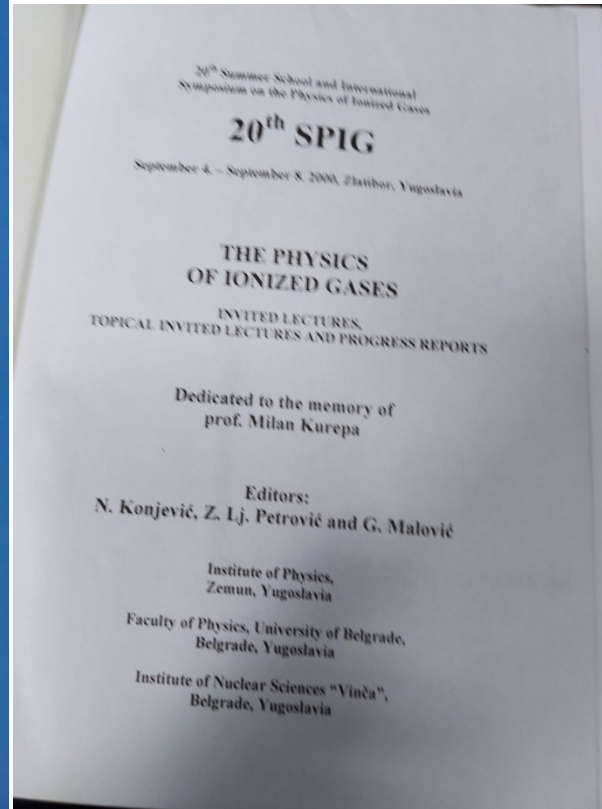
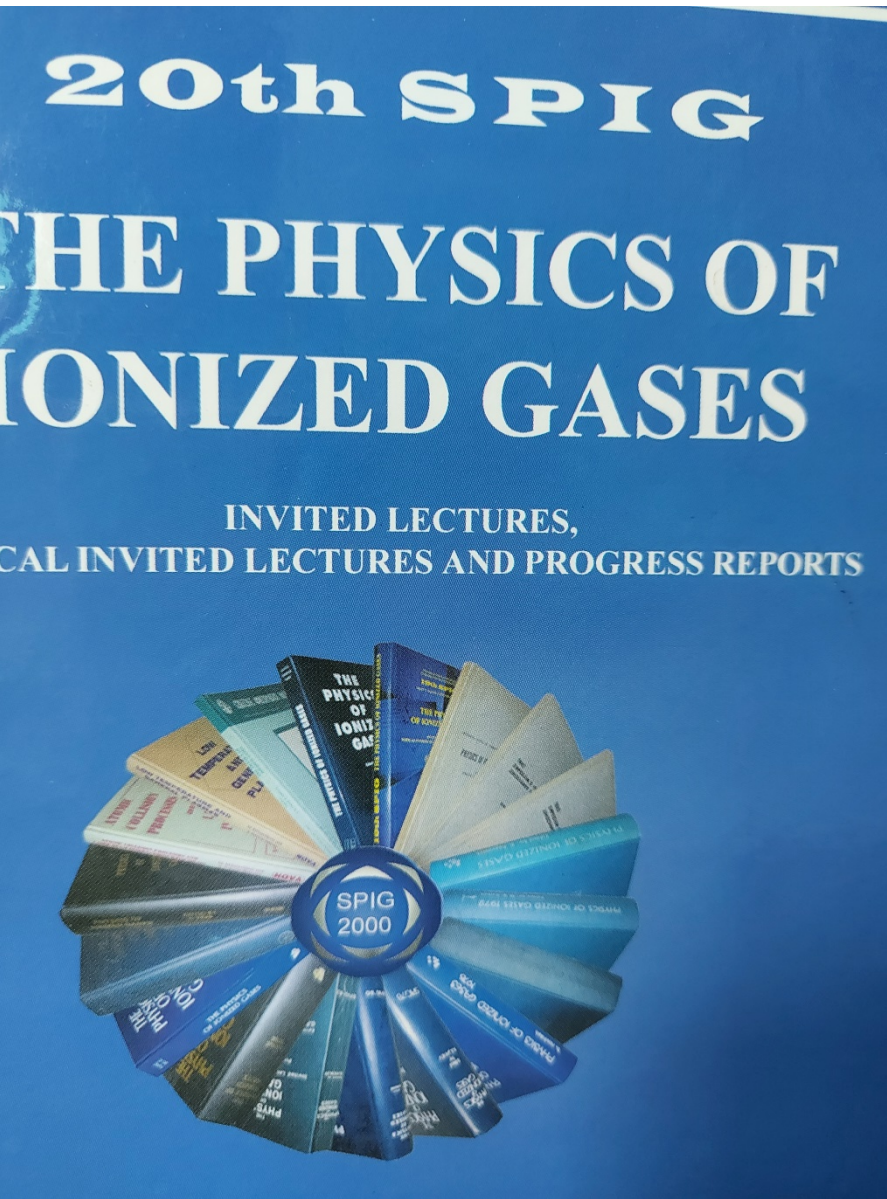


1996 Kotor B.Vujičić , S.Djurović (Novi Sad)  
1998 Zlatibor N.Konjević (Belgrade)  
2000 Zlatibor Z.Petrović, N.Bibić (Belgrade)

G Musa  
H Kawano  
N Nakano T Makabe  
V Arhipenko  
R Djulgerova  
J Klimontovich  
K Mima  
N Spyrou  
R Robson  
N Sadeghi



# 20<sup>th</sup> Spig 2000



**Milan Kurepa  
(1933-2000)**

The principal force behind  
the first 20 SPIG conferences



## 20th SPIG

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S. Djurović	YU	N. Nedeljković	YU
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D. Jovanović	YU	M. Radović	YU
M. Kono	JPN	M. Skorić	YU

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G. Malović, Secretary  
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N. Kos  
B. Marinković  
M. Radetić  
Z. Raspopović  
A. Strinić  
N. Šišović



СВЕТСКЕ ФИЗИЧКИХ НАУКА

SFIN year XIV Series A: Conferences

No. A1 (2001)

## 20th SPIG

# THE PHYSICS OF IONIZED GASES

INVITED LECTURES,  
TOPICAL INVITED LECTURES AND PROGRESS REPORTS



Editors:

N. Konjević, Z. Lj. Petrović, and G. Malović

Institute of Physics  
Faculty of Physics, University of Belgrade  
Institute of Nuclear Sciences "Vinča"  
Belgrade, Yugoslavia

Student's resting place

# Zlatibor

+ Čigota

Diet- Weight loss center

**S.J. Buckman**

M.Yu. Amusia

R. McCarroll

**W. Lindiger**

Stolterfoht

**Z. Mišković**

History of SPIG the  
first 40 years

J. Labat and

M. Kurepa (Z. Lj.  
Petrović)

Z Donko

K. Wieseman

G. Popa

**L. Vušković S Popović**

P Shukla

**F Pergoraro**

Yoshida ....

# Business as usual:

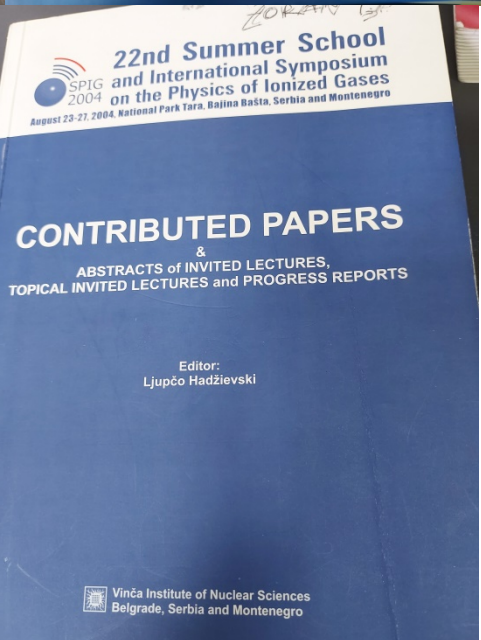
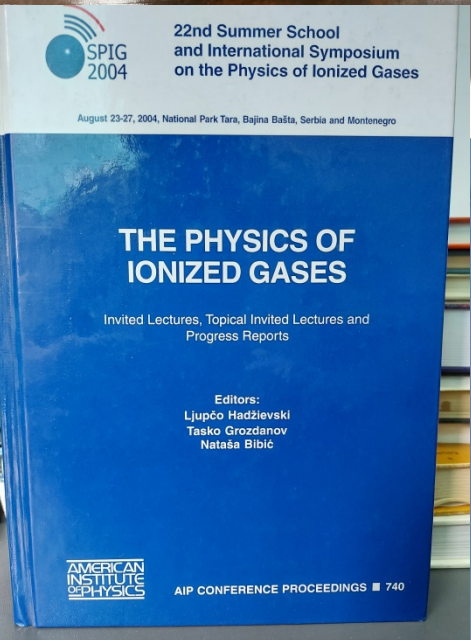
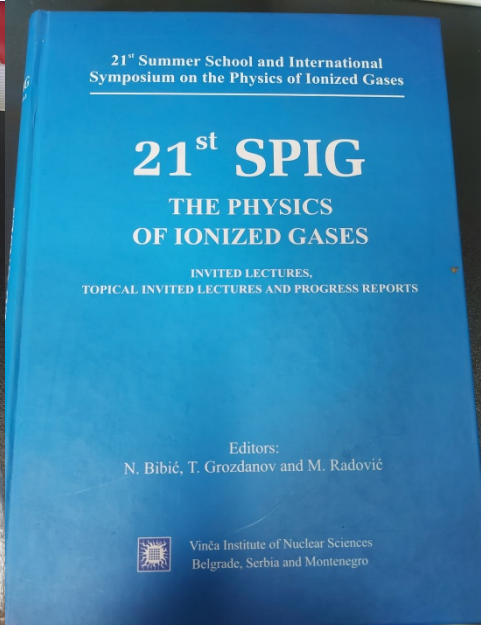
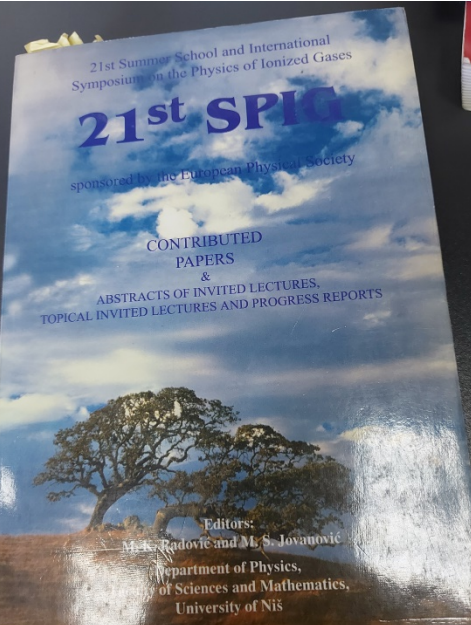
NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
<b>SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
21	2002	Soko Banja	M.Radović (Niš)	N.Bibić (Belgrade)
22	2004	Bajina Bašta	Lj.Hadžievski (Belgrade)	T.Grozdanov (Belgrade)
23	2006	Kopaonik	N.Simonović, P.Marinković (Belgrade)	T.Grozdanov (Belgrade)
24	2008	Novi Sad	L.Popović, M.Dimitrijević (Belgrade)	G.Malović (Belgrade)
25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
26	2012	Zrenjanin	Z. Mijatović (Novi Sad)	M. Kuraica (Belgrade)
27	2014	Belgrade	D. Marić, A.R. Milosavljević (Belgrade)	Z. Mijatović (Novi Sad)
28	2016	Belgrade	G. Poparić, B. Obradović (Belgrade)	D. Marić, A.R. Milosavljević (Belgrade)
29	2018	Belgrade	D. Borka, M. Rajković (Belgrade)	G. Poparić, B. Obradović (Belgrade)
30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)

Several changes of the main principles:

- books of invited lectures gradually phased out (several by IOP and APS conf. Proceedings)
- Special issues in journals mainly EPJ D
- No more (more) sea
- Belgrade and the building of the Academy become more and more popular
- Interplay of chairpersons in the LOC and ISC
- It is not quite clear whether there are some specific rules on the membership in ISC
- It is not quite clear what the scope of the conference is .

## 2002 Soko Banja M.Radović (Niš)

## 2004 Bajina Bašta Tara Lj.Hadžievski (Belgrade)



PS Krstić

**SJ Buckman**

**G Karwasz**

**M Allan**

Y Serruys

**V Godyak**

**T Makabe**

**H Thomas**

E Mediavella

R McCarroll

P Scheier

**MJ Brunger**

**J de Urquijo**

ST Manson

J P Booth

S Radovanov

**E Stoffels**

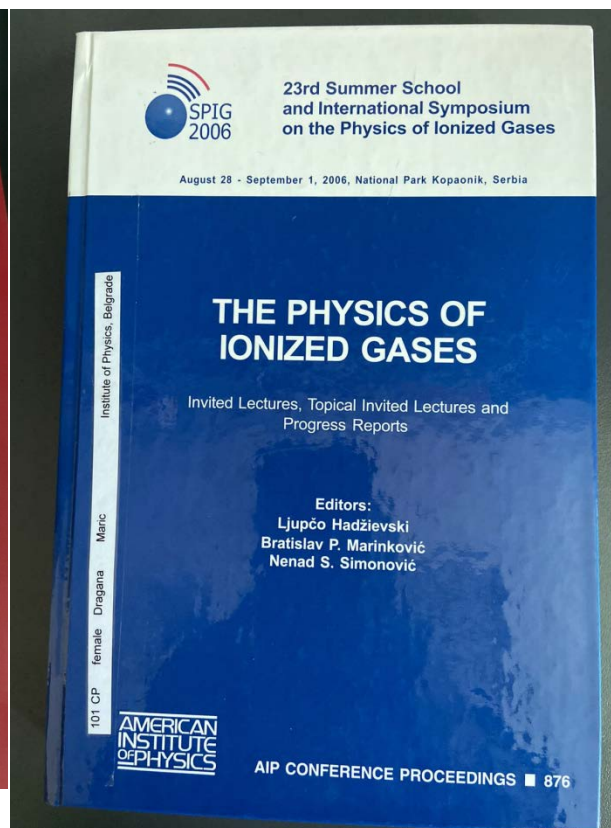
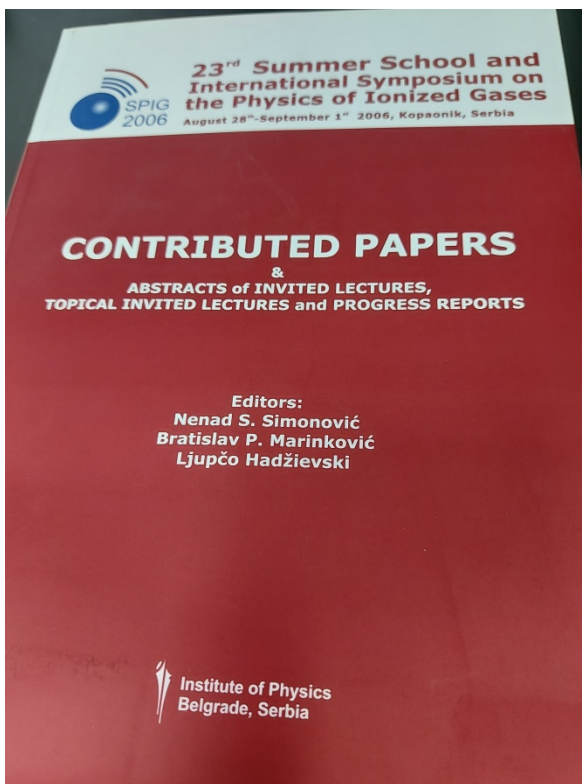
**P Hartman**

**K Mima**

# Business as usual:2006

NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
<b>SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
21	2002	Soko Banja	M.Radović (Niš)	N.Bibić (Belgrade)
22	2004	Bajina Bašta	Lj.Hadžievski (Belgrade)	T.Grozdanov (Belgrade)
23	2006	Kopaonik	N.Simonović, P.Marinković (Belgrade)	T.Grozdanov (Belgrade)
24	2008	Novi Sad	L.Popović, M.Dimitrijević (Belgrade)	G.Malović (Belgrade)
25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
26	2012	Zrenjanin	Z. Mijatović (Novi Sad)	M. Kuraica (Belgrade)
27	2014	Belgrade	D. Marić, A.R. Milosavljević (Belgrade)	Z. Mijatović (Novi Sad)
28	2016	Belgrade	G. Poparić, B. Obradović (Belgrade)	D. Marić, A.R. Milosavljević (Belgrade)
29	2018	Belgrade	D. Borka, M. Rajković (Belgrade)	G. Poparić, B. Obradović (Belgrade)
30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)

A very successful conference:  
-a sad event  
-unusually cold weather



AIP Conference Proceedings **876**, frontmatter (2006);

<https://doi.org/10.1063/v876.frontmatter>

**THE PHYSICS OF IONIZED GASES: 23rd Summer School and International Symposium on the Physics of Ionized Gases; Invited Lectures, Topical Invited Lectures and Progress Reports**

Conference date: 28 August-1 September 2006

Location: National Park Kopaonik (Serbia)

ISBN: 978-0-7354-0377-2

Editors: Ljupco Hadzievski,  
**Bratislav Marinkovic and  
Nenad Simonovic**

Volume number: 876

Published: Dec 1, 2006

2006 Kopaonik		PROGRESS REPORTS	
No	Topic	No	Topic
PLENARY LECTURES			
1	Osamu Motojima	4	Olivera Šašić
2	John Douglas Hey	3	Predrag Jovanović
3	Nikolay A Dyatko	1	6 Aliz Simon
4	Joachim Burgdörfer	2	7 Jovana Petrović
5	Bill Graham	3	8 <b>Dimitri Batani</b>
6	<b>Klaus-Peter Lieb</b>	2	9 Marco Gigosos
7	<b>Nigel J Mason</b>	1	10 Milivoje Ivković
8	Jacques Baudon	1	11 Violeta Lazić
9	Vladimir Mezentsev	2	12 Čedomir Maluckov
10	Hideo Nagatomo	4	13 Velimir Milinović
11	Albert Ellingboe	3	14 Predrag S. Krstić
12	Timo Gans	3	15 Jorge Mahecha
13	Stefka Cartaleva	1	16 Igor Savić
14	<b>Jan Dusan Skalny</b>	3	17 Kinga Kutasi
15	Emmanouel Danezis	4	18 Minja Gemišić
16	Jürgen Fassbender	2	19 Milada Bartlova
17	<b>Svetozar Popovic</b>	3	20 Dragana Marić
			21 Željka Nikitović
			22 Joan Marler
			23 Danica Cvejanovic
			24 Branko Predojević
TOPICAL LECTURES			
No	Topic	No	Topic

1	Richard Taieb	1
2	Ronald White	1
3	Stafano Ciroi	4
4	Zheng-Ming Sheng	4
5	Sergei Kukhlevski	3
6	Charles Mahony	3
7	<b>Laurence Campbell</b>	1
8	Suguru Masuzaki	4
9	François Mathis	2
10	Russell Gwilliam	2
11	Manon Lourenco	2

**Workshops /satellites**

**Serbia Japan  
Serbia Belarus**

**positrons**

# First International Workshop on Nonequilibrium Processes in Plasma Physics and Studies of Environment

Z Lj Petrović, G Malović, M Tasić

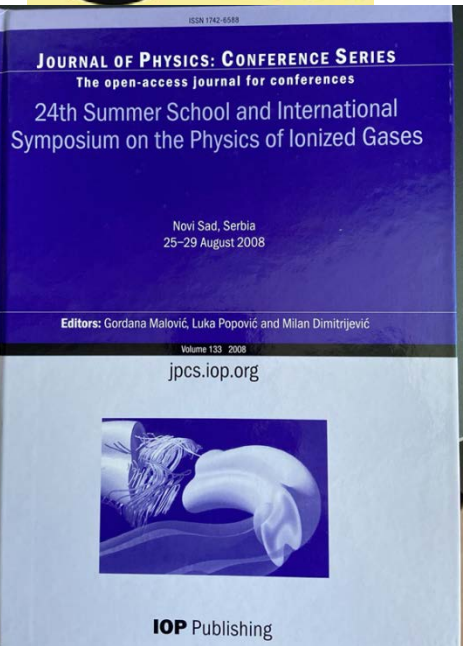
[Journal of Physics: Conference Series, Volume 71, August 2006, Kopaonik, Serbia](#)

- Z Lj Petrović, G Malović, M Tasić and Ž Nikitović
- D Batani, ...
- Mario J Pinheiro
- J P Marler and M R Stoneking
- R D White, R E Robson, Michael A Morrison, B Li and K F Ness
- N A Dyatko
- **J de Urquijo**
- M Radmilović-Radjenović, Z Lj Petrović and B Radjenović
- Z Donkó, P Hartmann and K Kutasi
- V Gencheva, R Djulgerova, V Mihailov, T Dohnalik and Z Lju Petrovic
- L Campbell and M J Brunger
- K Niemi, St Reuter, L Schaper, N Knake, V Schulz-von der Gathen and T Gans
- W G Graham and K R Stalder
- Svetlana Radovanov and Ludovic Godet
- I Stefanović, E Kovačević, J Berndt and J Winter
- M Tasic, S Rajsic, V Novakovic and Z Mijic
- M Radetic, P Jovancic, N Puac and Z Lj Petrovic



# 24th Summer School and International Symposium on the Physics of Ionized Gases

**Luka Popović Milan Dimitrijević**  
Novi Sad, Serbia August, 25 -- 29, 2008



**2nd International Workshop on Non-Equilibrium Processes in Plasmas and Environmental Science**  
2008 Belgrade and Novi Sad, Serbia 23-26 August  
2008 Journal of Physics: Conference Series Volume 162  
Editors: Zoran Petrovic Gordana Malovic  
Dragana Maric ISBN: 978-1-61738-372-4

ISBN: 978-1-61738-372-4

PROGRESS REPORTS		
No		Topic
1	Nevena Puač	3
2	Nenad Bundaleski	2
3	Florian Aigner	2
4	Saša Simić	4
5	Miroslava Vukčević	4
6	Duško Borka	2
7	Saša Dujko	1
8	Violeta Petrović	1
9	Vladimir Stojanović	1
10	Dragana Petrović	3
11	Antonios Antoniou	4
12	Iztok Čadež	4
13	Gordana Majstorović	3
14	Aleksandar F. Zakharov	4

[Proceedings of 24th SPIG published in JoP Conf. Series vol. 133](#)

2008 Novi Sad		
PLENARY LECTURES		
No		Topic No
1	Uwe Czarentzki	3
2	<b>Stephen Buckman</b>	1
3	F. Pegoraro	4
4	Gustavo García	1
5	Aldo Armigliato	2
6	Mirko Černák	3
7	<b>Kunoiki Mima</b>	4
8	Matthew Goeckner	2
9	Miloš Škorić	4
10	Vladimir Fortov	3
11	Alejandro Saenz	1
12	<b>Zoran Mišković</b>	2
13	Markus Schoefferl	1
14	Antoine Rousseau	3
15	Volker Hoffmann	3
16	Piero Rafanelli	4
17	Zoran Petrović	1
TOPICAL LECTURES		
No		Topic
1	Achim von Keudell	2
2	Giorgio Dilecce - canceled	3
3	Victor Tarasenko	3
4	Dolores Calzada-Canalejo	4
5	Philippe Roncin	2
6	Christoph Lemell	2
7	Edward Steers	3
8	James Sullivan	1
9	Akira Kobayashi	3
10	Deborah O Connell	3

**Prof. Dr. Branislava Perović-Nešković died in Belgrade on February 4, 2008. She was born in Banjaluka in 1920**



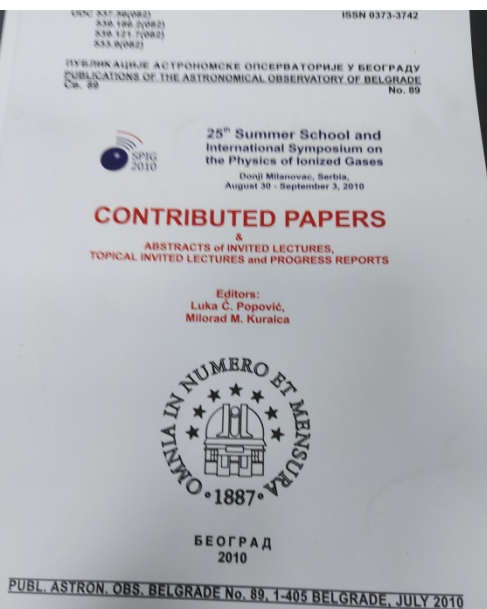


# 2010 M Kuraica 25th Summer School and International Symposium on the Physics of Ionized Gases

Donji Milanovac, Serbia, August, 30 – September, 3, 2010.

2010 D. Milanovac		
PLENARY LECTURES		
No		Topic
1	Ulrich Kogelschatz	3
2	Satoshi Hamaguchi	2
3	Yuri Akishev	3
4	Julien Fuchs	2
5	Oddur Ingolfsson	2
6	Wolfram Kollatschny	4
7	Yuri Lebedev	3
8	Akio Komori	4
9	Jan-Michael Rost	1
10	Pascal Chabert	3
11	Lu-Jing Hou	3
TOPICAL LECTURES		
No		Topic
1	Jiri Horacek	1
2	Ronald McCarroll	1
3	Nenad Bundaleski	2
4	Sylvie Sahal-Brechot	4
5	Seiji Ishiguro	4
6	Andrey N. Klyucharev	4
7	Dirk Peter van der Werf	1
8	Elena Filimonova	3
9	Miran Mozetić	3
10	Leanid Simonchik	3
11	Ramon Pelaez	3
12	Åshild Fredriksen	3

PROGRESS REPORTS		
No		Topic
1	Paul Tiwald	2
2	Branko Tomčik	2
3	Ivan Radović	2
4	Kari Niemi	3
5	Saša Gocić	3
6	Suzana Stamenković	3
7	Evangelia Lyratzi	4
8	Edi Bon	4
9	M.A. Mirković	2
10	Dragana Ilić	4
11	Vesna Borka Jovanović	4
12	Nenad Sakan	4
13	Dejan Dimitrijević	4
14	Casten Makocheanwa	1
15	Ana Banković	1
16	Milovan Šuvakov	1
17	Aleksandar Milosavljević	1
18	Milan S. Dimitrijević	4
19	Zoran Simić	4
20	Ivan Dojčinović	4
21	Olivier Guaitella	3
22	Bratislav Obradović	3
23	Ana Mančić	2



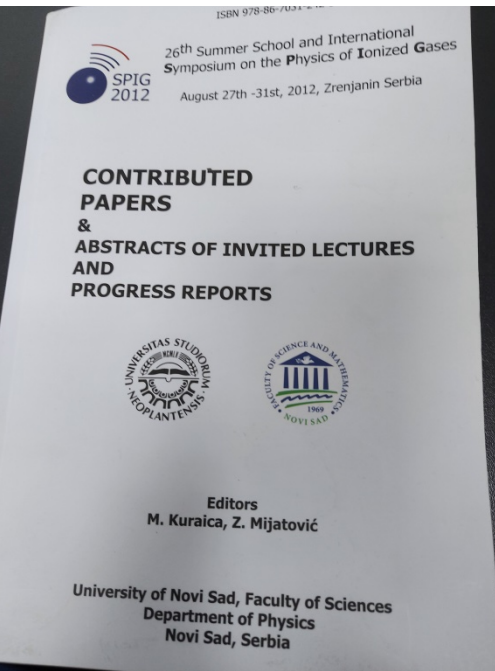
**25th Summer School and International  
Symposium on the Physics of Ionized Gases –  
SPIG 2010 30 August–3 September 2010,  
Donji Milanovac, Serbia [Volume 257](#)**







# Zrenjanin Zoran Mijatović



2012 Zrenjanin		
PLENARY LECTURES		
No		Topic
1	Dieter Gerlich	1
2	Mark Kushner	3
3	J. Hermann	2
4	J-M. Pouvesle	3
5	V. M. Astashinski-canceled	4
6	Dimitri Batani	2
7	A. Bogaerts	3
8	M. Charlton	1
9	M. Stockli	1
10	Ute Ebert	3
11	H. E. Wagner	3
12	Uroš Cvelbar	2
13	G. Ferland	4

TOPICAL LECTURES	
No	
1	F. Penent
2	Jean-Marc Bizau
3	Vladimir Milosavljević
4	Đorđe Spasojević
5	T. Ikeda
6	T. Watanabe
7	J. A. Aparicio
8	L. Campbell
9	R. Čurik
10	N. B. Nassib
11	Marcello Coreno
12	Juana L. Gervasoni-cancel
13	Hideo Nagatomo
14	E. Kovačević-canceled
15	T. Popov
16	A. Bultel
17	J. Rosato

PROGRESS REPORTS		
No		Topic
1	D. Kubala	1
2	Nikola Cvetanović	3
3	N. Gavrilović-Bon	4
4	M. Majkić	2
5	J. Kovačević	4
6	A. Mihelić	3
7	Saša Lazović	3
8	D. Tankosić	4
9	S. M. D. Galijaš	2
10	M. Zlatar	2
11	M. Radović	2
12	Sanja Tošić	1
13	Nikola Šišović	3
14	Suzana Petrović	2
15	Nikola Škoro	3
16	M. Ristić	1
17	A. Antoniou	4
18	G. Wachter	2



## 2014 D Marić and A Milosavljević Belgrade

- New paradigm 3+1+1 days



2014 Beograd		
PLENARY LECTURES		
No		Topic
1	Friedrich Aumayr (AT)	2
2	Dževad Belkić (SE)	1
3	Michael Brunger (AU)	1
4	<b>David Cassidy (UK)</b>	1
5	Alessandro De Giacomo (IT)	2
6	<b>Alexander Fridman (US)</b>	3
7	Akio Komori (JP)	4
8	George Naidis (RU)	3
9	Predrag Ranitović (US)	1
10	Jack Sulentic (ES)	4
11	Petra Swiderek (DE)	1

TOPICAL LECTURES		
No		Topic
1	Ilko Bald (DE)	2
2	Stephen Buckman (AU)	1
3	Gheorghe Dinescu (RO)	2
4	David Duday (LU)	2
5	Albert R. Ellingboe (IE)	3
6	Gustavo Garcia (FR)	1
7	Jimena Gorfinkiel (UK)	1
8	Juan Carlos Idrobo (US)-canceled	2
9	Atsushi M. Ito (JP)-canceled	2
10	František Krčma (CZ)	3
11	Kinga Kutasi (HU)	3
12	Luís Lemos Alves (PT)	1
13	Branko Predojević (BA)	4
14	Milan Šimek (CZ)	3
15	Fumiyoshi Tochikubo (JP)	3
16	Janko Zabka (CZ)	4

## X-ray Interaction with Biomolecules in Gas Phase (XiBiGP) Workshop

- Alexandre Giuliani (FR)
- Edwin Kukk (FI)
- Pascal Lablanquie (FR)
- Kevin Prince (IT)
- Thomas Schlathölter (NL)
- Bernd Winter (DE)

PROGRESS REPORTS		
No		Topic
1	Danko Bošnjaković (RS)	1
2	Marko Cvejić (RS)	3
3	Marcin Dampc (UK)	1
4	Filipe Ferreira da Silva (PT)	1
5	<b>Aranka Derzsi (HU)</b>	3
6	Radmila Janečkova (CH)	1
7	Aleksandar Jovanović (RS)	3
8	Jovica Jovović (RS)	3
9	Ita Junkar (SI)	3
10	Andrei Klyucharev (RU)	4
11	Sylvain Maclot (FR)	1
12	Jelena Maljković (RS)	1
13	Srdjan Marjanović (RS)	1
14	Nenad Milojević (RS)	1
15	Vadym Prysiazhnyi (BR)	2
16	Sylwia Ptasinska (US)	3
17	Maja Rabasović (RS)	1
18	Ivan Radović (RS)	2
19	Vladimir Srečković (RS)	4
20	Marjan Stankov (RS)	3
21	Dimitrios Stathopoulos (GR)	4
22	Rachel Thorman (IS)	1
23	Karoly Tokesi (HU)	2
24	Sonja Vidojević (RS)	4

## The Third International Workshop on Non-Equilibrium Processes (NonEqProc)

- Michael Allan
- Karen Belkić
- Thierry Belmonte
- Jerome Bredin
- Zoltan Donko
- Nigel Mason
- Svetlana Radovanov
- Milovan Šuvakov and veljko Dmitrašinović
- Ron White

## The Third International Workshop on Non-Equilibrium Processes (NonEqProc)

Roman Čurik  
 Stefan Denfil  
 Juraj Fedor  
 Tom Field  
 Janina Kopyra  
 Peter Papp  
 Evelina Szymanska  
 Matija Zlatar





## 2016 Belgrade

### G. Poparić (Co-chair) B. Obradović (Co-chair)

#### Invited lectures

- Lorenzo Avaldi (Italy)
- Igor Bray (Australia)
- Till Jahnke (Germany)
- Philippe Roncin (France)
- Peter Bruggeman (USA):
- Pietro Favia (Italy)
- Masaru Hori (Japan)
- Pascal Boubert (France)
- Jürgen Meichsner (Germany)
- Roland Stamm (France)
- Hiroshi Azechi (Japan)

#### TOPICAL LECTURES:

- Nelson de Oliveira (France):
- Patrick Rousseau (France)
- Denis Ceolin (France)
- James Sullivan (Australia)
- Felix Julian Schulze (USA)
- Károly Tökési (Hungary)
- Christoph Lemell (Austria)
- Vito Despoja (Croatia)
- Li Baiwen (China)
- Carlos Pintassilgo (Portugal)
- Joe Khachan (Australia)
- Ronny Brandenburg (Germany)
- Marija Gorjanc (Slovenia)
- Manuel Macias-Montero (UK)
- Jinghong Li (China)
- René Goosmann (France)
- Giovanni La Mura (Italy)
- Evangelia Lyratzi (Greece)
- Achim Czasch (Germany)

#### Progress Reports

- Miloš Ranković
- Anita Ribar (Austria)
- Jaroslav Kočišek (Czech)
- Xi Han (USA)
- Miloš Nenadović
- Miloš Burger
- Sara Toth (Hungary)
- Ronald sachser (Germany)
- Yingying Zhang (China)
- Zoran Ristić
- Zdenek Navratil (Czech)
- Ana Sobota (The Netherlands)
- Goran Sretenović
- Szalvian Iseni (France)
- Teodora Gajo
- Marijana Gavrilović
- Marija Vranić (Portugal)
- Ivan Milić (Germany)
- Aleksandra Nina
- Bin Li(China)
- Joel Rosato (France)
- Michal Ryszka (USA)

## **WORKSHOP X-ray Interaction with Biomolecules in Gas Phase (XiBiGP):**

- Sadia Bari (Germany):
- Mattea Castrovilli (Italy):
- Sergio Diaz-Tendero (Spain):
- Ronnie Hoekstra (The Netherlands):
- Kuno Kooser (Finland):
- Robert Seidel (Germany):
- Alberto De Fanis (Germany):
- Fabian Holzmeier, (France):
- Sanja Tomic, (Serbia):

## **WORKSHOP *Non-Equilibrium Processes - (NonEqProc):***

- Kinga Kutasi (hungary)
- Vasco Guerra (portugal)
- Svetlana Radovanov (USA)
- Roberto Celiberto (Italy)
- Jianguo Wang (China)
- Peter Stokes (Australia)
- James Sullivan (Australia)
- Gustavo Garcia (Spain)



## 2018 Belgrade

### D. Borka, M. Rajković (Belgrade)

#### Invited

- Ron White (Australia)
- Jan Hendrik Bredehöft (Germany)
- Vincenzo Amendola (Italy)
- Dejan Milošević (Bosnia and Herzegovina)
- Nikolay A. Dyatko (Russia)
- Arnaud Bultel (France)
- Yasuhiko Takeiri (Japan)
- Mark Koepke (USA)
- Evgeny Stambulchik (Israel)
- John Bozek (France)
- Seiji Samukawa (Japan)

#### Topical Invited

Christophe Blondel (France)  
Rashid Nazmitdinov (Russia)  
R Panajotović  
Laurence Campbell (Australia)  
Kari Jankala (Finland)  
Miloš Burger (USA)  
Leonardo Marušić (Croatia)  
Davor Peruško  
Jan Tomas Gudmundsson (Iceland)  
Dušan Božanić  
Anton Nikiforov (Belgium)  
Tomas Hoder (Czech)  
Andrei Pipa (Germany)  
Vesna Borka Jovanović  
Anđelka Kovačević  
Paola Marziani (Italy)  
Hiroshi Kasahara (Japan)

#### Progress reports

Rim Hadidi (France)  
Mirjana Vojnović  
Mirjana Novaković  
Bart Oostenrijk (Sweden)  
Marko Ćosić  
Miloljub Nešić  
Miloš Skočić  
Maja Popović  
Vesna Kovačević  
Nikola Ivanović  
Ana Kramer  
Lazar Gavanski  
Dejan Maletić  
Biljana Stankov  
Mohamed Koubiti (France)  
Maša Lakićević  
Vladimir Srećković  
Dušan Onić  
Nikola Bezulov (Russia)  
Edi Bon  
Dimitros Tzimeas (Greece)  
James Dedrick (UK)

## WORKSHOP X-ray Interaction with Biomolecules in Gas Phase (XiBiGP):

- Gustavo Garcia (France)
- Oksana Plekan (Italy)
- Miloš Milčić (Serbia)
- Ana Martín Somer (Spain)
- Robin Schürmann (Germany)
- Jacopo Chiarinelli (Italy)
- Thomas Schlathölter (Netherlands)
- Lucas Schwob (Germany)
- Miloš Ranković (Czech Republic)
- Christophe Nicolas (France)
- Johannes Niskanen (Finland)
- Clara Saak (Sweden)







# 30<sup>th</sup> Summer School and International Symposium on the Physics of Ionized Gases

August 24 - 28, 2020, Šabac, Serbia

- 2020 Sabac
- D. Ilić, V. Srećković (Belgrade)



NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
<b>SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
1	1962	Belgrade	B.Perović (Belgrade)	
2	1964	Zagreb	Z.Šternberg (Zagreb)	
<b>SUMMER SCHOOL ON PHYSICS OF IONIZED GASES</b>				
-	1964	Herceg Novi	B.Perović(Belgrade)	
<b>SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
3	1966	Niš	Dj Bošan(Niš)	Dj Bošan (Niš)
<b>SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
4	1968	Herceg Novi	B.Perović (Belgrade)	B.Perović (Belgrade)
5	1970	Herceg Novi	B.Navinšek (Ljubljana)	B.Čobić (Belgrade)
6	1972	Split	M.Kurepa (Belgrade)	--
7	1974	Rovinj	V.Vujnović (Zagreb)	--
8	1976	Dubrovnik	B.Navinšek (Ljubljana)	--
9	1978	Dubrovnik	R.Janev (Belgrade)	B.Perović (Belgrade)
10	1980	Dubrovnik	B.Čobić (B)	H.Drawin (France)
11	1982	Dubrovnik	G.Pichler (Zagreb)	B.Aničin (Belgrade)
12	1984	Šibenik	M.M.Popović (Belgrade)	M.M.Popović (Belgrade)
13	1986	Šibenik	J.Purić (Belgrade)	M.Kurepa (Belgrade)
14	1988	Sarajevo-Igman	L.Tanović (Sarajevo)	N.Konjević (Belgrade)
15	1990	Dubrovnik	D.Veža (Zagreb)	I.Terzić (Belgrade)
16	1993	Belgrade	M.Milosavljević (Belgrade)	Z.Petrović (Belgrade)
17	1994	Belgrade	B.Marinković (Belgrade)	Z.Petrović (Belgrade)
18	1996	Kotor	B.Vujičić , S.Djurović (Novi Sad)	J.Purić (Belgrade)
19	1998	Zlatibor	N.Konjević (Belgrade)	S.Djurović (Novi Sad)
20	2000	Zlatibor	Z.Petrović, N.Bibić (Belgrade)	M.Kuraica (Belgrade)
21	2002	Soko Banja	M.Radović (Niš)	N.Bibić (Belgrade)
22	2004	Bajina Bašta	Lj.Hadžievski (Belgrade)	T.Grozdanov (Belgrade)
23	2006	Kopaonik	N.Simonović, P.Marinković (Belgrade)	T.Grozdanov (Belgrade)
24	2008	Novi Sad	L.Popović, M.Dimitrijević (Belgrade)	G.Malović (Belgrade)
25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
26	2012	Zrenjanin	Z. Mijatović (Novi Sad)	M. Kuraica (Belgrade)
27	2014	Belgrade	D. Marić, A.R. Milosavljević (Belgrade)	Z. Mijatović (Novi Sad)
28	2016	Belgrade	G. Poparić, B. Obradović (Belgrade)	D. Marić, A.R. Milosavljević (Belgrade)
29	2018	Belgrade	D. Borka, M. Rajković (Belgrade)	G. Poparić, B. Obradović (Belgrade)
30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)

# What has SPIG achieved

- A high level of Atomic, molecular, surface collision physics, plasma physics and general physics of ionized gases and their applications
- Stronger connections to the leading centers of international science, calibration of our research
- Percentage of these fields in Yugoslav/Serbian science is considerably larger than the established international standards
-

# Thanks to all the colleagues friends and family



- **Ratko Janev 1939-2019**



- **Zdenko Šternberg 1920-2018**

- **Nevenka Todorović 1954-2020**

















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7	1974	Rovinj	V.Vujnović (Zagreb)	--
8	1976	Dubrovnik	B.Navinšek (Ljubljana)	--
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25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
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8	1976	Dubrovnik	B.Navinšek (Ljubljana)	--
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16	1993	Belgrade	M.Milosavljević (Belgrade)	Z.Petrović (Belgrade)
17	1994	Belgrade	B.Marinković (Belgrade)	Z.Petrović (Belgrade)
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20	2000	Zlatibor	Z.Petrović, N.Bibić (Belgrade)	M.Kuraica (Belgrade)
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30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)

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<b>SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
1	1962	Belgrade	B.Perović (Belgrade)	
2	1964	Zagreb	Z.Šternberg (Zagreb)	
<b>SUMMER SCHOOL ON PHYSICS OF IONIZED GASES</b>				
-	1964	Herceg Novi	B.Perović(Belgrade)	
<b>SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
3	1966	Niš	Dj Bošan(Niš)	Dj Bošan (Niš)
<b>SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
4	1968	Herceg Novi	B.Perović (Belgrade)	B.Perović (Belgrade)
5	1970	Herceg Novi	B.Navinšek (Ljubljana)	B.Čobić (Belgrade)
6	1972	Split	M.Kurepa (Belgrade)	--
7	1974	Rovinj	V.Vujnović (Zagreb)	--
8	1976	Dubrovnik	B.Navinšek (Ljubljana)	--
9	1978	Dubrovnik	R.Janev (Belgrade)	B.Perović (Belgrade)
10	1980	Dubrovnik	B.Čobić (B)	H.Drawin (France)
11	1982	Dubrovnik	G.Pichler (Zagreb)	B.Aničin (Belgrade)
12	1984	Šibenik	M.M.Popović (Belgrade)	M.M.Popović (Belgrade)
13	1986	Šibenik	J.Purić (Belgrade)	M.Kurepa (Belgrade)
14	1988	Sarajevo-Igman	L.Tanović (Sarajevo)	N.Konjević (Belgrade)
15	1990	Dubrovnik	D.Veža (Zagreb)	I.Terzić (Belgrade)
16	1993	Belgrade	M.Milosavljević (Belgrade)	Z.Petrović (Belgrade)
17	1994	Belgrade	B.Marinković (Belgrade)	Z.Petrović (Belgrade)
18	1996	Kotor	B.Vujičić , S.Djurović (Novi Sad)	J.Purić (Belgrade)
19	1998	Zlatibor	N.Konjević (Belgrade)	S.Djurović (Novi Sad)
20	2000	Zlatibor	Z.Petrović, N.Bibić (Belgrade)	M.Kuraica (Belgrade)
21	2002	Soko Banja	M.Radović (Niš)	N.Bibić (Belgrade)
22	2004	Bajina Bašta	Lj.Hadžievski (Belgrade)	T.Grozdanov (Belgrade)
23	2006	Kopaonik	N.Simonović, P.Marinković (Belgrade)	T.Grozdanov (Belgrade)
24	2008	Novi Sad	L.Popović, M.Dimitrijević (Belgrade)	G.Malović (Belgrade)
25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
26	2012	Zrenjanin	Z. Mijatović (Novi Sad)	M. Kuraica (Belgrade)
27	2014	Belgrade	D. Marić, A.R. Milosavljević (Belgrade)	Z. Mijatović (Novi Sad)
28	2016	Belgrade	G. Poparić, B. Obradović (Belgrade)	D. Marić, A.R. Milosavljević (Belgrade)
29	2018	Belgrade	D. Borka, M. Rajković (Belgrade)	G. Poparić, B. Obradović (Belgrade)
30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)



- **SYMPOSIUM ON PHYSICS OF IONIZED GASES**
- **1**
- **1962**
- **Belgrade**
- **B.Perović (Belgrade)**
- **2**
- **1964**
- **Zagreb**
- **Z.Šternberg (Zagreb)**
- **SUMMER SCHOOL ON PHYSICS OF IONIZED GASES**
- **-**
- **1964**
- **Herceg Novi**
- **B.Perović(Belgrade)**
- **SYMPOSIUM ON PHYSICS OF IONIZED GASES**
- **3**
- **1966**
- **Niš**
- **Dj Bošan(Niš)**
- **Dj Bošan (Niš)**

NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
<b>SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
15	1990	Dubrovnik	D.Veža (Zagreb)	I.Terzić (Belgrade)
16	1993	Belgrade	M.Milosavljević (Belgrade)	Z.Petrović (Belgrade)
17	1994	Belgrade	B.Marinković (Belgrade)	Z.Petrović (Belgrade)
18	1996	Kotor	B.Vujičić , S.Djurović (Novi Sad)	J.Purić (Belgrade)
19	1998	Zlatibor	N.Konjević (Belgrade)	S.Djurović (Novi Sad)
20	2000	Zlatibor	Z.Petrović, N.Bibić (Belgrade)	M.Kuraica (Belgrade)
21	2002	Soko Banja	M.Radović (Niš)	N.Bibić (Belgrade)
22	2004	Bajina Bašta	Lj.Hadžievski (Belgrade)	T.Grozdanov (Belgrade)
23	2006	Kopaonik	N.Simonović, P.Marinković (Belgrade)	T.Grozdanov (Belgrade)
24	2008	Novi Sad	L.Popović, M.Dimitrijević (Belgrade)	G.Malović (Belgrade)
25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
26	2012	Zrenjanin	Z. Mijatović (Novi Sad)	M. Kuraica (Belgrade)
27	2014	Belgrade	D. Marić, A.R. Milosavljević (Belgrade)	Z. Mijatović (Novi Sad)
28	2016	Belgrade	G. Poparić, B. Obradović (Belgrade)	D. Marić, A.R. Milosavljević (Belgrade)
29	2018	Belgrade	D. Borka, M. Rajković (Belgrade)	G. Poparić, B. Obradović (Belgrade)
30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)







# Recovery:

NO	YEAR	PLACE	LOC CHAIR	SC CHAIR
<b>SUMMER SCHOOL AND INTERNATIONAL SYMPOSIUM ON PHYSICS OF IONIZED GASES</b>				
21	2002	Soko Banja	M.Radović (Niš)	N.Bibić (Belgrade)
22	2004	Bajina Bašta	Lj.Hadžievski (Belgrade)	T.Grozdanov (Belgrade)
23	2006	Kopaonik	N.Simonović, P.Marinković (Belgrade)	T.Grozdanov (Belgrade)
24	2008	Novi Sad	L.Popović, M.Dimitrijević (Belgrade)	G.Malović (Belgrade)
25	2010	Donji Milanovac	M.Kuraica (Belgrade)	L.Popović(Belgrade)
26	2012	Zrenjanin	Z. Mijatović (Novi Sad)	M. Kuraica (Belgrade)
27	2014	Belgrade	D. Marić, A.R. Milosavljević (Belgrade)	Z. Mijatović (Novi Sad)
28	2016	Belgrade	G. Poparić, B. Obradović (Belgrade)	D. Marić, A.R. Milosavljević (Belgrade)
29	2018	Belgrade	D. Borka, M. Rajković (Belgrade)	G. Poparić, B. Obradović (Belgrade)
30	2020	Sabac	D. Ilić, V. Srećković (Belgrade)	D. Borka, L. Popović (Belgrade)

Several changes of the main principles:

- books of invited lectures gradually phased out (several by IOP and APS conf. Proceedings)
- Special issues in journals mainly EPJ D
- No more (more) sea
- Belgrade and the building of the Academy become more and more popular
- Interplay of chairpersons in the LOC and ISC
- It is not quite clear whether there are some specific rules on the membership in ISC
- It is not quite clear what is the scope of the conference